Congressional Digest

Washington, D. C.

April, 1926

Should U. S. Adopt Metric System?

Metric and English Systems Compared

The Britten Metric Bill

Pro and Con Discussion

Federal Supervision of Weights and Measures

Explained by

Government Officials in Charge

Action on President's Recommendations to Congress

Day by Day Proceedings in Senate and House

OTHER REGULAR FEATURES

Five Dollars a Year *Fifty Cents a Copy*

The Congressional Digest

Not an Official Organ, Not Controlled by Nor Under Influence of Any Party, Interest, Class or Sect

ALICE GRAM ROBINSON, *Editor and Publisher*

Contents for April, 1926

Special Feature: Should U. S. Adopt Metric System for General Use?

SIXTY-NINTH CONGRESS

Action on President's Recommendations to Congress 111
Congress Day by Day—Proceedings 113

SPECIAL FEATURE: SHOULD U. S. ADOPT METRIC SYSTEM FOR GENERAL USE?

History of Weights and Measures in United States
Prepared by Bureau of Standards, U. S. Department of Commerce 115
Bureau of Standards, U. S. Department of Commerce
By George K. Burgess, Director 116
Division of Weights and Measures, Bureau of Standards
By H. W. Bearce and F. S. Holbrook, In Charge of Division 116
The Metric System 117
Tables of Weights and Measures—Metric System 118
Tables of Weights and Measures—English System 118
Table of English and Metric Equivalents 119
Legislation in Congress for Adoption of Metric System—1879-1922 120
Text of Britten Metric Bill 120

PRO AND CON DISCUSSION:

Members of Congress Discuss Britten Metric Bill
Hon. Fred A. Britten vs. Hon. John M. Wolverton 121
Should U. S. Adopt Metric System for General Use?
Frederic L. Roberts 122
Association of Railway Executives 122
Theodore H. Miller 123
Herbert T. Wade 123
The Cincinnati Milling Machine Company 124
Major Fred J. Miller 125
Godfrey L. Cabot 125
Burroughs Adding Machine Company 125
Westinghouse Electric and Manufacturing Company 125
National Lumber Manufacturers Association 126
Dr. William Jay Schieffelin 127
Dr. Harvey W. Wiley 127
Pittsburgh Steel Company 127
National Association of Paint Distributors 127
The American Brass Company 127
Jay E. Morgan 128
C. C. Stutz 128
National Association of Manufacturers 129
Samuel W. Stratton 131
Arthur E. Kennelly 132
National Founders Association 132
Retail Drygoods Association, New York 133
The Pierce-Arrow Motor Car Company 133
National Wholesale Grocers' Association 134
National Association of Retail Grocers 134

OTHER REGULAR FEATURES

The White House 135
The Supreme Court of the United States: Recent Decisions 135
Recent Government Publications of General Interest 136

Subscription Rates $5.00 per Year

Terms: Published the first of Every Month, except for July and August. Current Subscription Rates: $5.00 a Year (ten numbers) Postpaid in U. S.; in Canada $5.25; Foreign Rates $5.50; Current Numbers 50c a copy, Back Numbers 75c a copy; Volumes, Bound $10 each; Unbound, $7.50. Address orders to: The Congressional Digest, Munsey Building, Washington, D. C.

Copyright, 1926, by Alice Gram Robinson, Washington, D. C.

Entered as Second-Class Matter September 20th, 1921, at the Post Office at Washington, D. C., Under the Act of March 3, 1879.

The Congressional Digest

Volume V | April, 1926 | Number 4

The Sixty-ninth Congress

First, or "Long" Session, Convened December 7, 1925.

In the Senate

96 members

56 Republicans | 39 Democrats | 1 Farmer-Labor

Presiding Officer

President: Charles G. Dawes, Vice-President

Floor Leaders

Majority Leader — Charles Curtis, Kans., R.

Minority Leader — Joseph T. Robinson, Ark., D.

Republican Party Whip — Wesley L. Jones, Wash.

Democratic Party Whip — Peter G. Gerry, R. I.

In the House

435 members

246 Republicans | 182 Democrats | 2 Socialists | 1 Independent | 2 Farmer-Labor | 2 Vacancies

Presiding Officer

Speaker: Nicholas Longworth, Ohio, R.

Floor Leaders

Majority Leader — John Q. Tilson, Conn., R.

Minority Leader — Finnis J. Garrett, Tenn., D.

Republican Party Whip — Albert H. Vestal, Ind.

Democratic Party Whip — William A. Oldfield, Ark.

Action Taken on President's Recommendations to Congress

For the period March 11 to April 10, 1926

The President's recommendations for legislative action contained in his annual message of December 8, 1925, to the 69th Congress, were printed in the December, 1925 number of The Congressional Digest, p. 327. The bills cited below embody the President's recommendations in whole or in part, but have not been specifically endorsed by the President unless indicated. The following report includes only those recommendations on which Congress has acted during the period March 11 to April 10, 1926. Action on these recommendations is reported in this Department month by month.

Appropriation Bills

Mar. 10—The bill (H. R. 10198) making appropriations for the District of Columbia for the fiscal year ending June 30, 1927 was reported from the House Committee on Appropriations. Report No. 488. Passed by the House March 18.

Mar. 11—The bill (H. R. 8917) making appropriations for the War Department for the fiscal year ending June 30, 1927 was passed by the Senate. Sent to conference March 23.

Mar. 13—The bill (H. R. 9795) making appropriations for the Departments of State and Justice and for the Judiciary, and for the Departments of Commerce and Labor for the fiscal year ending June 30, 1927, was reported in the Senate with amendments. Report No. 372. Passed by the Senate, amended, March 27. Sent to conference April 7.

Mar. 13—The bill (H. R. 6707) making appropriations for the Interior Department for the fiscal year ending June 30, 1927, was reported in the Senate with amendments. Report No. 373. Passed by the Senate, amended, March 18. Sent to conference March 20.

Mar. 17—The bill (H. R. 10425) making appropriations for the Legislative Establishment for the fiscal year ending June 30, 1927, was reported from the House Committee on Appropriations. Report No. 568. Passed by the House April 7.

Mar. 22—The bill (H. R. 9341) making appropriations for the Executive office and independent executive bureaus etc., for the fiscal year ending June 30, 1927, was passed by the Senate, amended. Sent to conference March 27.

Foreign Debts

*"It is believed * * * these settlements * * * already negotiated * * * represent in each instance the best that can be done and the wisest settlement that can be secured."*

Mar. 24—The bill (S. 1136) to authorize the settlement of the indebtedness of Italy to the United States was made the unfinished business before the Senate.

Mar. 25—Mr. Smoot, Utah, R., chairman of the Senate Committee on Finance, reported the House bill (H. R. 6773) for the settlement of Italian debt to the United

States. The House bill was substituted for the Senate bill (S. 1136) as the unfinished business before the Senate.

Mar. 29, 30, 31 April 1—Resumed debate on the Italian debt settlement bill.

National Defense

"The Departments of War, Navy and Commerce should each be provided with an additional assistant secretary • • • to give special attention to air navigation.

Aviation is of great importance both for national defense and commercial development. We ought to proceed in its improvement • • •"

Mar. 29—Mr. Morin, Pa., R., from the Committee on Military Affairs reported a bill (H. R. 10827) to provide more effectively for the national defense by increasing the efficiency of the Air Corps of the Army of the United States. Report No. 700. The bill is pending on the Union Calendar. The bill embraces a five-year building program for the Army Air Service. Creation of an additional assistant secretary in the War Department, to handle aviation, is included in the bill. The name of the Air Service is changed to Army Air Corps. The corps, however, would not have independent status analogous to the Marine Corps in the Navy. The program also provides for three additional brigadier generals in the air arm, two of whom at least must be pilots; and increase of 400 in the officer and 6,000 in the enlisted personnel; and a requirement that at least 90 per cent of the officers be pilots, and that they be assigned to command of aviation activities.

Apr. 8—The House began consideration of the bill (H. R. 9690, Butler, Pa., R.) authorizing the construction and procurement of aircraft and aircraft equipment in the Navy and Marine Corps, and to adjust and define the status of the operating personnel in connection therewith.

Agriculture

"A bill • • • which has been drafted with the approval of • • • leaders in the cooperative movement will be presented to the Congress."

"Legislation should also be considered to provide for leasing the unappropriated public domain for grazing purposes and adopting a uniform policy relative to grazing on the public lands and in the national forests."

Mar. 16—The Senate Committee on Agriculture and Forestry continued hearings on the bill (H. R. 7893, Haugen, Ia., R.) to create a division of cooperative marketing in the Department of Agriculture. The hearings were concluded on March 19.

Apr. 9—The Senate Committee on Agriculture and Forestry announced that it would close hearings on all pending farm relief measures on April 12, and would take up consideration of the subject in executive session with a view to reporting legislation.

Mar. 31—The Senate Committee on Public Lands and Surveys reported with amendments the bill (S. 2584, Stanfield, Ore., R.) to promote the development, protection, and utilization of grazing facilities on public lands, to stabilize the range stock-raising industry, etc. The bill as finally reported constitutes a compromise measure, and has the approval of Secretary Jardine and Secretary Work. Report No. 517.

Railroads

"I recommend that the Congress authorize such consolidations under the supervision of the Interstate Commerce Commission • • •."

Apr. 5—Mr. Cummins, Ia., R., introduced a new bill (S. 3840) to provide for the consolidation of carriers by railroad and the unification of railroad properties within the United States. The bill was referred to the Senate Committee on Interstate Commerce. The bill takes the place of the bill (S. 1870).

Muscle Shoals

"Muscle Shoals • • • ought to be developed for the production of nitrates primarily, and incidentally for power purposes • • • the best possible deposition can be made by direct authorization of the Congress. I recommend the immediate appointment of a small joint special committee chosen from the appropriate standing committees of the House and Senate to receive bids. • • •"

Mar. 11—The House agreed to the Senate amendments, with an amendment, to the resolution (H. Com. Res. 4) to create a joint congressional committee to negotiate for the leasing of the government Muscle Shoals properties. The Senate agreed to the House amendments to the Senate amendments, March 13. The House amendment added the provision that no lease be accepted that does not guarantee and safeguard the production of nitrates and other fertilizers.

Mar. 15—Senator Deneen, Ill., R., was chosen chairman of the joint Congressional Committee to negotiate leases for Muscle Shoals. The other members of the Committee are Senators Heflin, Ala., D., and Sackett, Ky., R., and Congressmen Morin, Pa., R., James, Mich., R., and Quin, Miss., D.

Mar. 30.—The Joint Committee announced that bids received after noon of April 10 will not be considered.

April 10—Six bids for the lease of Muscle Shoals have been received by the Joint Committee. Under the provisions of the resolution, the committee now has until April 26 to make its report to Congress.

Reclamation

"The Congress has already provided for a survey which will soon be embodied in a report."

Mar. 22—The House Committee on Irrigation and Reclamation reported, with amendments, an omnibus reclamation bill (H. R. 10429, Smith, Ida., R.) to adjust water-right charges, to grant certain other relief on Federal irrigation projects, to amend subsections E and F of section 4 of Act approved December 5, 1924. Report No. 617. The bill was prepared under the direction of the Secretary of the Interior and submitted by him to the chairman of the committee for introduction. It is based on a report of the Board of Survey and Adjustments, authorized under the Act of December 5, 1924, which report is known as House Document 201, 69th Congress, 1st Session.

Federal Buildings

It is understood that the public buildings bill (H. R. 6559, Elliott, Ind. R.) now pending on the Senate Calendar, will be the first legislation taken up in the Senate after the Italian debt bill and the Brookhart-Steck election contest have been disposed of. The bill carries a total authorization of $165,000,000, of which $50,000,000 is to be used for public buildings in the District of Columbia to relieve the present congestion in the executive departments, $15,000,000 will provide for the completion of buildings authorized in the public building act approved March 4, 1913, and the balance of $100,000,000 is to be used at the discretion of the Secretary of the Treasury for public buildings throughout the United States. The Secretary of the Treasury is to act jointly with the Postmaster General where postoffice buildings are to be erected, enlarged or remodeled.

Continued on page 143

Congress Day by Day

A Daily Record of Proceedings on the Floor of the Senate and House

For Period March 1 to March 31, 1926

Monday, March 1, 1926

SENATE:

Recommitted the bill (H. R. 4785, Zihlman, Md., R.) for the acquisition of land for the Rock Creek and Potomac Parkway to the Committee on the District of Columbia.

Passed the bill (S. 1430, Capper, Kans., R.) to establish a board of public welfare in the District of Columbia.

Passed a resolution (S. J. Res. 51, Fess, O., R.) providing for the completion of the Tomb of the Unknown Soldier in the Arlington National Cemetery. Upon the request of Mr. Fletcher, Fla., D., the vote was reconsidered, and the resolution went back to the Calendar.

Considered the resolution (H. Con. Res. 4) providing for a joint committee to conduct negotiations for leasing Muscle Shoals.

An executive session was held.

Recess was taken.

HOUSE:

Passed, by a vote of 381 to 13, the Watson-Parker bill (H. R. 9463) providing for the settlement of railroad labor disputes.

Passed a bill (H. R. 7176, Bacon, N. Y., R.) to permit aliens who served under U. S. flag during World War to become naturalized citizens under certain conditions.

Passed a number of bills authorizing bridges, and also passed measures relating to Indian lands.

Passed a bill (H. R. 7966, Weller, N. Y., D.) to change the name of the "Board of General Appraisers" to the "United States Customs Court."

Debated and passed the bill (S. 1129, Wadsworth, N. Y., R.) authorizing the use for construction at military posts of the proceeds of the sale of surplus War Department real property, etc.

Passed a bill (H. R. 120, Burtness, N. D., R.) fixing fees and subsistence allowance of jurors and witnesses in the United States courts.

Adjourned.

Tuesday, March 2, 1926

SENATE:

Appointed the Senate conferees on the Department of Agriculture appropriation bill (H. R. 8264).

Resumed consideration of the resolution (H. Con. Res. 4) providing for a joint committee to conduct negotiations for leasing Muscle Shoals.

Agreed to the conference report on the urgent deficiency appropriation bill (H. R. 8722).

An executive session was held.

Adjourned.

HOUSE:

Appointed the House conferees on the Department of Agriculture appropriation bill (H. R. 8264).

Amended and passed the bill (H. R. 9341) making appropriations for the Executive Office and independent offices, etc. for the fiscal year ending June 30, 1927.

Began consideration of the bill (H. R. 9795) making appropriations for the Departments of State, Justice and for the judiciary, and for the Departments of Commerce and Labor, for the fiscal year ending June 30, 1927.

Adjourned.

Wednesday, March 3, 1926

SENATE:

Resumed consideration of the resolution (H. Con. Res. 4) providing for a joint committee to conduct negotiations for leasing Muscle Shoals.

An executive session was held.

The Senate gave its advice and consent to the ratification of the following treaties:

Treaty between United States and Czechoslovakia for the mutual extradition of fugitives from justice, signed at Prague, July 21, 1925.

Convention between the United States and Belgium to aid in the prevention of the smuggling of alcoholic liquors into the United States, signed at Washington, December 9, 1925.

Supplementary extradition treaty between United States and Cuba, signed at Habana, January 14, 1926.

Treaty between United States and Mexico relative to prevention of smuggling, signed December 23, 1925.

Treaty between United States and Spain for the prevention of the smuggling of alcoholic liquors into the United States, signed February 10, 1926.

Recess was taken.

HOUSE:

Resumed consideration of the bill (H. R. 9795) making appropriations for the Departments of State, Justice, Commerce, and Labor.

Adjourned.

Thursday, March 4, 1926

SENATE:

Continued debate on the resolution (H. Con. Res. 4) providing for a joint committee to conduct negotiations for leasing Muscle Shoals.

Mr. McKinley, Ill., R., spoke in opposition to the bill (S. 575, Gooding, Ida., R.) to amend section 4 of the Interstate Commerce Act relative to long and short haul rates.

Amended and passed the resolution (H. Con. Res. 11) expressing the appreciation of Congress for the heroic services rendered by the officers and crews of the steamships President Roosevelt, President Harding, American Trader, Republic and Cameronia.

Recess was taken.

HOUSE:

Continued consideration of the bill (H. R. 9795) making appropriations for the Departments of State, Justice, Commerce, and Labor.

Adjourned.

Friday, March 5, 1926

SENATE:

Mr. McKinley, Ill., R., spoke in favor of a federal board to dispose of the surplus agricultural crop abroad.

Adopted a unanimous consent agreement to vote on March 8, at 3:30 p. m. on resolution (H. Con. Res. 4) providing for joint committee to conduct negotiations for leasing Muscle Shoals.

An executive session was held.

Adjourned.

HOUSE:

Continued consideration of the bill (H. R. 9795) making appropriations for the Departments of State, Justice, Commerce, and Labor.

Mr. Gilbert, Ky., D., urged independence for the Philippines. Mr. Underhill, Mass., R., replied.

Mr. Woodrum, Va., D., spoke on proposed legislation for the return to German nationals of property now held by the Alien Property Custodian.

Adjourned.

Saturday, March 6, 1926

SENATE:

Mr. Robinson, Ark., D., spoke on his bill (S. 3447) to reduce the membership of the Tariff Commission from 6 to 4, and on the resolution (S. Res. 162) directing the Finance Committee of the Senate to make an inquiry into the work of the Tariff Commission.

Continued debate on the resolution (H. Con. Res. 4) providing for a joint committee to conduct negotiations for leasing Muscle Shoals.

An executive session was held.

Recess was taken.

HOUSE:

Amended and passed the bill (H. R. 9795) making appropriations for the Departments of State, Justice, Commerce, and Labor. Adjourned.

Monday, March 8, 1926

SENATE:

Adopted, by a vote of 51 to 26, the resolution (H. Con. Res. 4) providing for a joint committee to conduct negotiations for leasing Muscle Shoals. Two amendments were agreed to. One, by Mr. Caraway, Ark., D., requires that surplus power development be distributed equitably among the States to which it may be transported. The other amendment, by Mr. Lenroot, Wis., R., gives the committee until April 26, 1926, to submit a proposal to Congress for a lease or leases of the property.

The Gooding bill (S. 575) to amend section 4 of the Interstate Commerce Act relative to long and short haul rates was made the unfinished business.

An executive session was held.

Adjourned.

HOUSE:

Agreed to the conference report on the bill (S. 1129, Wadsworth, N. Y., R.) authorizing the use for construction at military posts of the proceeds from the sale of surplus War Department real property, etc.

Considered legislation relating to the District of Columbia. Passed the bill (H. R. 3802) to amend the District Traffic Act.

Adjourned.

Tuesday, March 9, 1926

SENATE:

Agreed to the conference report on the bill (S. 1129, Wadsworth, N. Y., R.) authorizing the use for construction at military posts of the proceeds from the sale of surplus War Department real property, etc.

Passed the bill (S. 3425, Kendrick, Wyo., D.) to authorize aided settlement on certain Federal reclamation projects, etc.

Mr. King, Utah, D., spoke on his bill (S. 3474) to provide for compulsory licenses for unused patents.

Began consideration of the bill (H. R. 8917) making appropriations for the War Department.

Mr. Pittman, Nev., D., replied to the criticisms of Federal-aid legislation on behalf of the public-land States.

An executive session was held.

Recess was taken.

HOUSE:

Considered legislation relating to the District of Columbia. Amended and passed the bill (S. 1430, Capper, Kans., R.) to establish a board of public welfare in the District of Columbia. A motion by Mr. Blanton, Tex., D., to recommit the bill was rejected by a vote of 168 to 127.

Passed the resolution (H. J. Res. 148) extending the time during which cattle which have crossed the boundary line into foreign countries may be returned duty free.

Adjourned.

Wednesday, March 10, 1926

SENATE:

In executive session the nomination of Charles W. Hunt to be a member of the Federal Trade Commission was confirmed by a vote of 48 to 20.

Resumed consideration of the bill (H. R. 8917) making appropriations for the War Department.

Mr. Oddie, Nev., R., discussed the subject of Federal-aid to public-land States for roads.

Mr. King, Utah, D., urged the withdrawal of United States troops from Haiti.

Adjourned.

HOUSE:

Agreed to the conference report on the bill (S. 1343, Sheppard, Tex., D.) for the relief of soldiers discharged from Army during World War because of misrepresentation of age.

Began consideration of the bill (H. R. 10198) making appropriations for the District of Columbia.

Mr. Hastings, Okla., D., spoke on his bill (H. R. 5406) to provide for the furnishing of surety bonds by all banks, National and State and trust companies which are members of the Federal Reserve System.

Mr. Jones, Tex., D., spoke in favor of Philippine independence.

Mr. Tydings, Md., D., spoke on the modification of the 18th Amendment. Mr. Tinkham, Mass., R., discussed statistics on prohibition violation in the District.

Adjourned.

Thursday, March 11, 1926

SENATE:

Adopted with amendments the resolution (S. Res. 162, Robinson, Ark., D.) providing for a special committee of five members to be appointed by the Chair to investigate the manner in which the flexible provision of the tariff act is being administered, and the appointment of members to the Tariff Commission, etc.

Passed the bill (H. R. 8917) making appropriations for the War Department.

Passed a number of bills authorizing the construction of bridges.

An executive session was held.

Recess was taken.

HOUSE:

Continued consideration of the District of Columbia appropriation bill (H. R. 10198).

Mr. Swing, Calif., R., spoke on the development of the Colorado River basin.

Mr. Mansfield, Tex., D., spoke on waterway development.

Agreed to the Senate amendments to the Muscle Shoals resolution (H. Con. Res. 4) with slight modifications, and adopted a further amendment calling for the filing of copies of all proposals submitted to the committee.

Adopted a resolution on the death of the Hon. Harry I. Thayer, Representative from eighth Massachusetts district.

Adjourned.

Friday, March 12, 1926

SENATE:

In accordance with the provisions of the resolution (S. Res. 162), the Vice President appointed the following members of the special committee to investigate the Tariff Commission: Mr. Wadsworth, N. Y., R., Mr. Reed, Pa., R., Mr. La Follette, Wis., R., Mr. Robinson, Ark., D., and Mr. Bruce, Md., D.

Resumed consideration of the Gooding bill (S. 575) to amend the long and short haul clause (section 4) of the Interstate Commerce Act. Mr. Gooding, Ida., R., explained the provisions of the bill. Mr. Fess, O., R., spoke in opposition to the measure.

Recess was taken.

HOUSE:

Adopted a resolution (H. Res. 170) seating Robert A. Green, D., from the second district of Florida.

Began consideration of the radio control bill (H. R. 9971, White, Me., R.). Mr. White explained the provisions of the bill. Mr. Davis, Tenn., D., who filed the minority report explained his objections to certain features of the bill, and proposed amendments to the bill.

Adjourned.

Saturday, March 13, 1926

SENATE:

Agreed to House amendments to Senate amendments to the Muscle Shoals resolution (H. Con. Res. 4). The following members of the special committee were appointed by the Vice President: Mr. Norris, Nebr., R., Mr. Heflin, Ala., D., and Mr. Sackett, Ky., R. Mr. Norris declined the appointment, and Mr. Deneen, Ill., R., was appointed in his place.

Resumed consideration of the Gooding bill (S. 575) to amend the long and short haul clause of the Interstate Commerce Act. Mr. Fess, O., R., concluded his speech in opposition to the bill.

Mr. McKellar, Tenn., D., spoke in support of the prohibition amendment.

Passed the bill (S. 957, Willis, O., R.) providing for the purchase of the Oldroyd collection of Lincoln relics.

Adjourned.

HOUSE:

Concluded consideration of the radio control bill (H. R. 9971, White, Me., R.).

Mr. Newton, Minn., R., submitted the report from the committee on Interstate and Foreign Commerce pursuant to H. Res. 59 on crude rubber, coffee, etc. Report No. 555.

In accordance with the provisions of the Muscle Shoals resolution (H. Con. Res. 4) the speaker appointed Mr. Morin, Pa., R., Mr. James, Mich., R., and Mr. Quin, Miss., D., members of the joint committee on Muscle Shoals.

Adjourned.

Continued on page 140

Special Feature

Should U. S. Adopt Metric System for General Use?

History of Weights and Measures in United States

Prepared by the Bureau of Standards, U. S. Department of Commerce

THE American colonists prior to the Revolution used the weights and measures brought from their mother countries. In English colonies the old English weights and measures were used, the Spanish colonists used those of Spain, and so on.

The Constitution of the United States provides that "The Congress shall have Power * * * to coin Money, regulate the Value thereof and of foreign Coin, and fix the Standard of Weights and Measures."

Washington's first annual message to Congress (January, 1790) said "Uniformity in the currency, weights and measures of the United States is an object of great importance, and will, I am persuaded, be duly attended to." On request of Congress, Jefferson, then Secretary of State, reported alternative plans: "to define and render uniform and stable the existing system" or "to reduce every branch to the same decimal ratio already established for coin, and thus bring the calculations of the principal affairs of life within the arithmetic of every man who can multiply and divide plain numbers."

No action was taken until Washington in his second annual message (Dec. 8, 1790) again called attention to the importance of action. The House of Representatives then communicated the Jefferson report to the Senate, and the Senate Committee reported (March 1, 1791) that it could not yet act because a proposition had been made to the French and British Governments to obtain an international standard.

In his third annual message to Congress (Oct. 25, 1791) Washington again pointed out the importance of uniform weights and measures and the desirability of basing the system upon "a standard at once invariable and universal." The Senate Committee which considered the subject reported (April 4, 1792) recommending the second of Jefferson's proposals, namely "an entirely decimal system" as already established for the coinage. No action was taken on this recommendation.

Congress (May 19, 1828) adopted as a standard the troy pound of the Mint for the regualtion of the coinage. On March 4, 1911, by act of Congress this standard was superseded by that of the Bureau of Standards.

In 1836 Congress ordered that copies of the standard weights and measures be distributed to the States of the Union. The troy pound adopted in 1828 was used for the derivation of the avoirdupois standard pound in the usual ratio. The yard was derived from an 82-inch standard scale of the Coast Survey. The capacity measures were designed to be equivalent to those in general use at that time.

In 1866 (July 28) Congress legalized the use of the metric system and established equivalents between the units of that system and those of the customary system. By action of Congress (July 27, 1866) copies of the metric standards were distributed to the States.

In 1893 the Secretary of the Treasury approved an order adopting the meter and kilogram standards recently acquired from the International Bureau of Weights and Measures as the primary standards of length and mass of the United States. Since that time all units of length and mass in both metric and the customary systems have been derived from these standards.

British and U. S. Weights and Measures Differ

The British weights and measures differ from those of the United States, as follows:

1 British yard $= \frac{39.37}{39.370113}$ United States yard.

1 British avoirdupois pound $= \frac{.4535924277}{.45359243}$ United States avoirdupois pound.

1 British* gallon $= \frac{277.418}{231}$ United States liquid gallon.

*defined as the volume of 10 pounds of water at 62° F.

1 British* bushel $= \frac{2219.34}{2150.42}$ United States Bushel.

*32 British quarts or 8 British gallons (defined above).

1 British fluid ounce* $= \frac{28.41227}{29.57291}$ United States fluid ounce.

*Although the British quart is larger than the United States quart the British fluid ounce is smaller because there are 40 fluid ounces to the British quart whereas there are 32 fluid ounces to the United States liquid quart.

All units derived from the above basis relations differ proportionately.

Federal Supervision of Weights and Measures

Bureau of Standards, U. S. Department of Commerce

By George K. Burgess
Director, Bureau of Standards, U. S. Department of Commerce

IN 1901 the old office of Standard Weights and Measures of the Federal Treasury Department was changed to the "National Bureau of Standards." The Bureau was given a scope commensurate with the modern conception of standards. To it was entrusted the construction, custody, and maintenance of the national standards. It is unique among the scientific laboratories of the world, especially rich in physics, chemistry, and the special technologies. It is authorized to compare and certify standards for science, industry, and trade; to solve problems arising in connection with standards; and to determine physical constants and the properties of materials. It is authorized to make tests for the Federal and State governments free, and for the public for a fee.

The Bureau has 16 buildings, a site of 43 acres, a staff of 749, (and 60 research associates), a scientific library of 29,000 volumes receiving 600 periodicals, and expends more than two million dollars annually. It has published 1255 scientific and technical publications giving research results and data on fundamental and applied measurements. Its divisions comprise weights and measures, electricity, heat and power, optics, chemistry, mechanics and sound, miscellaneous materials, metals, structural materials, as well as simplified practice, building and housing, and a special unit administering the Federal work on specifications. Apart from general funds, Congress appropriates definite amounts for about 23 special subjects.

A visiting Committee established by Congress reports to the Secretary of Commerce as to the work of the Bureau and its special needs. The Director's annual report briefly reviews important achievements of the year, gives a financial report and a report of tests.

The Bureau cooperates with the State governments on technical details of weights and measures legislation and inspection and holds annual conference of weights and measures officials. It retests and certifies the State standards used to control the local standards used in testing trade measures. It is represented on and actively cooperates with the standardization committees of the scientific and technical societies and in turn receives advice and cooperation from some 900 experts of the industries.

All the measures of industry and trade by which products are made and sold are controlled through standards certified by the Bureau of Standards. Researches are always in progress to improve the accuracy, range, and convenience of measurements of the most varied kinds. Researches develop new devices, materials, and processes, and yield data which may be conveniently classified under standards of measurement, physical constants, standards of quality, performance and practice. The Bureau aims to cooperate with all agencies in each field working on like enterprises and its work is constructive for industrial progress, returning to the country far in excess of 200 per cent annually on the amount invested in its work.

Division of Weights and Measures, Bureau of Standards

By H. W. Bearce and F. S. Holbrook
In charge of the Division of Weights and Measures, Bureau of Standards

THE division of weights and measures is charged with the custody of the National Standards of the United States and with the task of spreading abroad their influence and of carrying them to as great an extent as is necessary into the scientific, industrial, and commercial life of the Nation. The division is thus concerned with research and measurements involving the fundamental units of length, mass, and time, and with derived or secondary units, such as area, volume, density, and pressure. The activities of the division also include the enforcement of certain Federal weights and measures laws, the preparation of specifications and tolerances for use in connection with standardization of weighing and measuring apparatus, gauges, and screw threads; cooperation with States in the preparation and enforcement of weights and measures legislation, and in administration of weights and measures departments; the design, improvement, inspection, and method of test of weighing and measuring apparatus, both precise and commercial; the carrying out of researches designed to result in more accurate knowledge of physical constants; and improvements in engineering practice.

The Division of Weights and Measures which was originally the Office of Weights and Measures of the U. S. Coast Survey, was the nucleus around which the present Bureau of Standards grew.

The work of the division is carried on by nine technical sections, each section dealing with problems in a rather definite and limited field.

Length—L. V. Judson

Scope

Preservation and comparison of the national standard of length and its copies.

Development of methods and apparatus for precise measurement of length.

Comparison of State, municipal and other standards of length with the national standards.

Test of area measuring devices.

Graduation of precision circles.

Test of graduated circles.

Preparation of specifications for instruments and apparatus requiring linear dimensions of a definite and stated accuracy.

Test of instruments and apparatus to determine conformity to specifications.

Measurements of length of a miscellaneous character, including study of conditions of use of apparatus and precision and nature of test required.

Obtaining, compiling, and distributing to manufacturers and others information concerning length measurements.

MASS—A. T. PIENKOWSKY

Scope

Custody of national standards of mass.

Improvement of standards of mass.

Improvement of methods and apparatus for precise weighing.

Gathering and distribution of information in regard to standard weights and precise weighing.

Specifications for standard weights and precise balances.

Testing standard weights.

Testing precise balances.

TIME—R. E. GOULD

Scope

Research and investigation of time-measuring devices.

Cooperation with and service on committees of organizations such as the Horological Institute of America, whose object is improvement in the construction, test, use, and repair of time-measuring devices.

Test and certification of time-measuring devices.

Answering inquiries with reference to time-measuring devices and related and miscellaneous subjects, such as standard time belts, calendar reform, etc.

CAPACITY AND DENSITY—E. L. PEFFER

Scope

Design, improvement, and calibration of special volumetric apparatus; burettes, pipettes, flasks, etc.

Determination of density and volume coefficients of liquids, and the preparation of tables based thereon.

Determination of the density of solids and change in density due to heat treatment, and mechanical working.

Testing of capacity and density apparatus; hydrometers, picnometers, etc.

Assistance to manufacturers of apparatus by conference and by correspondence.

GAS MEASURING INSTRUMENTS—H. S. BEAN

Scope

Conduct of researches on gas-measuring instruments.

Service on committees whose functions are to specify standards for the construction, testing, and using of gas meters.

Preparation of publications on gas-measuring instruments and methods.

Tests of gas-measuring instruments.

THERMAL EXPANSIVITY—W. SOUDER

(*Length Variations Laboratory*)

Scope

Experimental determination of thermal expansivity of solids.

Location of transformation regions when accompanied by length changes.

Determination of dimensional variations incident to heat treatment or manipulative processes; for example, distortions due to time, temperature or use.

Ruling linear scales.

Designing and construction precision dividing engine.

Constructing precision screws.

Determining physical properties of dental materials and a proper technique for their efficient use.

WEIGHTS AND MEASURES LAWS AND ADMINISTRATION—R. W. SMITH

Scope

Cooperation with State and local weights and measures departments.

Cooperation with manufacturers of weighing and measuring devices.

Conduct of investigations and surveys on weights and measures.

INVESTIGATION AND TESTING OF SCALES—H. M. ROESER

Scope

Calibration and maintenance of accuracy of master track scales.

Continued on page 143

The Metric System

Origin of Metric System
The International Bureau of Weights and Measures
Countries Which Have Adopted Metric System

BECAUSE of the diversity of units of weights and measures the demand for a simple universal system of weights and measures grew steadily to a climax in the closing years of the 18th century.

In 1790 new systems of weights and measures were proposed independently in the House of Commons of England, in the House of Representatives of the United States, and in the National Assembly of France. The French Assembly considered the subject May 8, 1790, and a decree resulted approving the establishment of a new system; inviting other nations to join in fixing the units, and referring the subject to the French Academy of Sciences for action.

The essential features of the metric system were embodied in a report made to the French National Assembly by the Academy of Sciences in 1791. A number of other nations were invited to cooperate with France in establishing the new system, and Holland, Denmark, Switzerland, Spain, and several minor States were represented on an international commission which met in Paris in 1799 to accept the metric standards constructed under the direction of the French Institute.

In response to an invitation of the French Government, the following countries sent representatives to a conference held in Paris on August 8, 1870, to consider the advisability of constructing new metric standards:

Austria,	Italy,	Spain,
Ecuador,	Norway,	Switzerland,
France,	Peru,	Turkey,
Great Britain,	Portugal,	United States,
Greece,	Russia,	Colombia.

A second conference was held two years later, at which 30 countries were represented, the United States again being among this number. At this conference it was decided that new meters and new kilograms should be

constructed to conform with the original standards of the Archives, and a permanent committee was appointed to carry out this decision. The preparation of the new standards had advanced so far by 1875 that the permanent committee appointed by the conference of 1872 requested the French Government to call a diplomatic conference at Paris to consider whether the means and appliances for the final verification of the new meters and kilograms should be provided, with a view to permanence, or whether the work should be regarded as a temporary operation.

In compliance with this request a conference was held in March, 1875, at which 19 countries were represented, the United States as usual being of this number.

International Bureau of Weights and Measures

On May 20, 1875, 17 of the 19 countries represented signed a convention which provided for the establishment and maintenance of a permanent International Bureau of Weights and Measures to be situated near Paris and to be under the control of an international committee elected by the conference, the committee to consist of 14 members, all belonging to different countries.

In addition to the primary work of verifying the new metric standards the bureau was charged with certain duties, the following being the most important:

(1) The custody and preservation, when, completed of the international prototypes and auxiliary instruments.

(2) The future periodic comparison of the several national standards with the international prototypes.

(3) The comparison of metric standards with standards of other countries.

The expenses of the bureau were to be defrayed by contributions of the contracting Governments, the amount for each country depending upon the population and upon the extent that the metric system was in use in the particular country.

In accordance with the terms of the convention the French Government set aside a plat of ground in the park of St. Cloud just outside of Paris, and upon this ground, which was declared neutral territory, the International Bureau of Weights and Measures was established.

The construction of the meters and kilograms had been intrusted to a special committee, and early in 1887 the committee completed its work and the new meters and kilograms were turned over to the International Bureau for comparison with the standards of the Archives and with one another.

It had been decided as early as 1873 that the new standards should be made of an alloy of 90 per cent platinum and 10 per cent iridium. Altogether 31 meters and 40 kilograms were constructed. By 1889 the entire work was completed and in September of that year a general conference was held at Paris, and by it the work of the international committee was approved.

The meter and kilogram which agreed most closely with the meter and kilogram of the Archives were declared to be the international meter and the international kilogram. These two standards, with certain other meters and kilograms, were deposited in a subterranean vault under one of the buildings of the International Bureau, where they are only accessible when three independent officials with different keys are present. The other standards were distributd by lot to the various Governments contributing to the support of the International Bureau. Those falling to the United States were meters Nos. 21 and 27 and kilograms Nos. 4 and 20.

The following countries have adopted the Metric System:

France	Monaco	Haiti
Belgium	Switzerland	Paraguay
Luxemburg	Norway	Cuba
Holland	Argentine	Philippines
Spain	Jugo-Slavia	Congo (Belgian)
Colombia	Rumania	Denmark
Panama	Costa Rica	Venezuela
Mexico	Salvador	*Turkey
Portugal	Montenegro	Latvia
Uruguay	Sweden	Poland
Italy	Siam	Greece
Brazil	Bulgaria	Esthonia
Chile	*Egypt	Lithuania
Ecuador	Finland	*China
Peru	Nicaragua	Russia
Germany	Bolivia	Japan
Austria	Guatemala	Morocco
Hungary	Tunis	
Czecho-Slovakia	Honduras	

*For governmental purposes.

The Metric System

The metric unit of *length* is the meter, which is a little more than 39 inches long. Just as the dollar is divided into 100 *cents*, the meter is divided into 100 *centimeters*, or "hundredth-meters." And as the cent is divided into 10 *mills*, the centimeter is divided into 10 *millimeters*, or "thousandth-meters." Millimeters are used when great accuracy is needed, as in measuring the thickness of wire, etc. The kilometer, containing 1000 meters, is used to measure long distances, where we have been accustomed to use the mile.

There are other metric measures of length, but these four are the only ones in common use.

Metric Table of Length

10 millimeters (mm)	=	1 centimeter (cm)
100 centimeters	=	1 meter (m)
1000 meters	=	1 kilometer (kl)

In the metric system, to change from one denomination to a lower denomination, we move the decimal point to the

English System

Measures of Extension

Linear Measure

12 inches (in. or ")	=1	foot (ft. or ')
3 feet	=1	yard (yd)
5½ yards or 16½ ft.	=1	rod (rd.), pole, or perch
320 rods or 5280 ft.	=1	mile (mi.)

A knot, used in navigation, is equal to 1.15 miles.

A fathom is equal to six feet.

Square Measure

144 square inches (sq. in.)	=1	square foot (sq. ft.)
9 square feet	=1	square yard (sq. yd.)
30¼ square yards	=1	square rod (sq. rd.)
160 square rods	=1	acre (A.)
640 acres	=1	square mile (sq. mi.)

Cubic Measure

1728 cubic inches (cu. in.)	=1	cubic foot (cu. ft.)
27 cubic feet	=1	cubic yard (cu. yd.)
128 cubic feet	=1	cord (cd.)
8 cord feet	=1	cord (cd.)

A perch of stone or masonry is 16½ feet (1 rd) long, 1½ feet wide, and 1 foot high, or 24¾ cu. ft. capacity. The perch sometimes has other values, viz, 22 cu. ft. and 18 cu. ft.

16 cu. ft.=1 cord foot (cd. ft.). A pile of wood 8 feet long, 4 feet wide, and 4 feet high contains a cord. The cord foot is 1 foot of the length of such a pile.

right; to change from a lower denomination to a higher, we move the decimal point to the left.

Example:
7 m = 700 cm = 7000 mm
1734 m = 1.734 km
200 cm = 2 m = .002 km

Metric Measures of Area

(a) The metric measures of area are formed from the metric measures of length. So 1 square millimeter (usually written 1mm²) is a square each of whose sides is 1 mm long; 100 mm² = 1 square centimeter (1cm²), etc.

(b) For land measure, a square 100 meters on each side is often used. This square is called a hectare.

100 m x 100 m = 10,000 m² = 1 hectare

Metric Measures of Volume

(a) The metric measures of volume are also formed from the metric measures of length. So 1 cubic millimeter (usually written 1mm³) is a cube each of whose edges is 1 mm long.

1000 mm³ = 1 cubic centimeter (1 cm³), etc.

Metric Measures of Capacity

The metric unit of capacity which take the place of both our dry and our liquid quart is the liter. A cubic measure 10 cm on each side will hold 1 liter (1l).

The small measure of capacity is the milliliter (ml), which is a thousandth of a liter. A cubic measure 1 cm on each edge will hold 1 milliliter.

The milliliter is equivalent to the cubic centimeter

The liter is equivalent to 1000 cm³ or .001 m³

The kiloliter (kl) is equivalent to 1 m³

Metric Table of Capacity

1000 milliliters (ml)	= 1 liter (l)
1000 liters	= 1 kiloliter (kl)

Metric Measures of Weights

The metric unit of weight is the gram, which is the weight of 1 milliliter (1 cubic centimeter) of water.

Metric Table of Weight

1000 milligrams (mg)	= 1 gram (g)
1000 grams	= 1 kilogram (kg)
1000 kilograms	= 1 metric ton (t)

Surveyors' Linear Measure

7.92 inches (in.)	=1 link (l.)
25 links	=1 rod (rd.)
100 links, 4 rods, 66 feet	each=1 chain (ch.)
80 chains	=1 mile (mi.)

Surveyors' Square Measure

16 square rods	=1 square chain
10 square chains	=1 acre (A.)
640 acres	=1 square mile (sq. mi.)
1 square mile	=1 section (sec.)
36 sections	=1 township (Tp.)

Surveyors' measure was obtained by calling one tenth of an acre a square chain. A tenth of an acre is equal to 16 square rods, and is equivalent to a square each side of which measures 4 rods. Thus, since 16 square rods is equal to one square chain, a linear chain is 4 rods or 792 inches. The linear chain is divided into 100 equal parts called links.

Measures of Capacity

Dry Measure

2 pints (pts.)	=1 quart (qt.)
8 quarts	=1 peck (pk.)
4 pecks	=1 bushel (bu.)

The "Winchester bushel" contains 2,150.4 cubic inches and is used in measuring shelled grains. The "heaped bushel" of 2747.7 cubic inches is used for measuring apples, potatoes, corn in the ear, etc. The dry gallon, or half peck, contains 268.8 cubic inches.

Liquid Measure

4 gills (gi.)	=1 pint (pt.)
2 pints	=1 quart (qt.)
31½ gallons	=1 barrel (bbl.)
2 barrels, or 63 gallons	=1 hogshead (hhd.)

One U. S. standard gallon contains 231 cubic inches, and one gallon of water weighs approximately 8 1-3 pounds.

One cubic foot of water contains approximately 7.5 U. S. standard gallons and weighs 62.3 pounds.

Apothecaries' Fluid Measure

60 minims	=1 fluid drachm
8 fluid drachms	=1 fluid ounce
16 fluid ounces	=1 pint

Measures of Weight

Troy Weight

24 grains (gr.)	=1 pennyweight (dwt. or pwt.)
20 pennyweights	=1 ounce (oz.)
12 ounces	=1 pound (lb.)

Continued on page 143

Table of English and Metric Equivalents

Length

1 inch	= 25.4001	millimeters
1 inch	= 2.54001	centimeters
1 inch	= 0.02540	meter
1 foot	= 0.30480	meter
1 meter	= 3.28083	feet
1 mile	= 1.60935	kilometers
1 kilometer	= 0.62137	mile
1 nautical mile (6080.20 ft.)	= 1.85325	kilometers.
1 kilometer	= 0.53959	nautical mile

Area

1 acre	= 0.40469	hectare
1 hectare	= 2.47104	acres

Volume

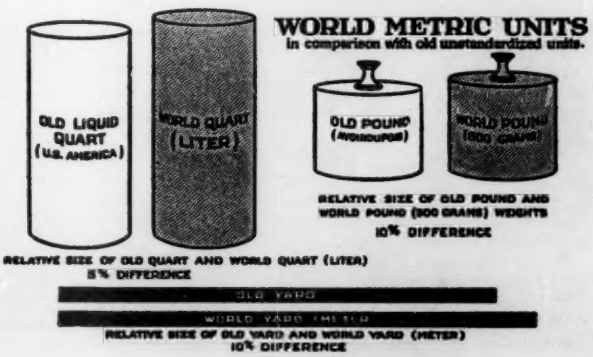
1 cubic yard	= 0.76456	cubic meter
1 cubic meter	= 1.30794	cubic yards.

Capacity

1 liquid quart	= 0.94633	liter
1 liter	= 1.05671	quarts
1 gallon	= 3.78533	liters
1 liter	= 0.26418	gallon
1 bushel	= 0.35238	hectoliters
1 hectoliter	= 2.83782	bushels

Mass

1 ounce (Avoirdupois)	= 28.3495	grams
1 gram	= 0.03527	ounces (Avoirdupois)
1 pound (Avoirdupois)	= 0.45359	kilogram
1 kilogram	= 2.20462	pounds (Avoirdupois)


WORLD METRIC UNITS
In comparison with old unstandardized units.
OLD LIQUID QUART (U.S. AMERICA)
WORLD QUART (LITER)
OLD POUND (AVOIRDUPOIS)
WORLD POUND (500 GRAMS)
RELATIVE SIZE OF OLD POUND AND WORLD POUND (500 GRAMS) WEIGHTS
10% DIFFERENCE
RELATIVE SIZE OF OLD QUART AND WORLD QUART (LITER)
5% DIFFERENCE
OLD YARD
WORLD YARD (METER)
RELATIVE SIZE OF OLD YARD AND WORLD YARD (METER)
10% DIFFERENCE

Legislation in Congress for Adoption of Metric System

THE first bill (H. R. 14) to provide for the general adoption of the metric system in the United States was introduced in Congress in 1879. The House Committee on Coinage, Weights and Measures favorably reported the measure to Congress, and recommended the exclusive use of the metric system. Bills urging the metric standardization of weights and measures in the United States were introduced in Congress in 1896, 1897, 1898, 1901 and 1902 and in 1907. The reports submitted on these bills by congressional committees were in favor of the adoption of the metric system.

On December 16, 1920 Senator Frelinghuysen, N. J., R., introduced a bill (S. 4675) "to fix the metric system of weights and measures as the single standard for weight and measures." Under this bill, manufacturers were to continue to use whatever measures they desired in production, but after ten years all commercial transactions were to be upon the world metric basis.

On December 29, 1920, Mr. Britten, Ill., R., introduced a bill practically identical to Senate bill (S. 4675).

On April 11, 1921, at the beginning of the 67th Congress, Mr. Britten again introduced a similar metric standards bill (H. R. 10). In the Senate a companion bill (S. 2267) was introduced by Senator Ladd, N. D., R. A subcommittee of the Senate Committee on Manufacturers held hearings on the Ladd bill.

Committee Reports and Hearings on Metric Legislation

1879—"Report of Committee on Coinage, Weights and Measures on the Adoption of the Metric System of Weights and Measures, together with Documents and Statistics Relating to the Subject," 46th Congress, 1st session, H. R. 14. Recommended exclusive use of metric units.

1896—"Report from Committee on Coinage, Weights and Measures," 54th Congress, 1st session, H. R. 795, vol. 3; March 16, 1896, 21 pp. Recommended exclusive use of metric units.

1897—"Report from Committee on Coinage, Weights and Measures," 54th Congress, 2d session, H. R. 2885, vol. 3; February 10, 1897, 40 pp. Recommended exclusive use of metric units.

1898—"Report of Committee on Coinage, Weights and Measures," 55th Congress, 2d session, H. R. 1597; June 20, 1898.

"Your committee believe that the adoption of the metric system of weights and measures would be an advantage and stimulus to our foreign commerce as well as a saving in time and labor in all the affairs of our domestic life, and they therefore recommend the passage of the bill."

1901—"Report from Committee on Coinage, Weights and Measures," 56th Congress, 2d session, House Report 3005, vol. 3, serial 4214; March 1, 1901, 9 pp. Recommended exclusive use of metric units.

1902—"Report from Committee on Coinage, Weights and Measures," 57th Congress, 1st session, House Report 1701, vol. 6, serial 4404; April 21, 1902, 10 pp. Recommended exclusive use of metric units.

1904-1906—"The Metric System. Hearings before the Committee on Coinage, Weights and Measures, 1904-1906." 320 pp.

1906—"The Metric System. Hearings before the Committee on Coinage, Weights and Measures," 58th Congress, 1st session, H. R. 93; and 58th Congress, 2d session, H. R. 2054.

1907—"The Metric System. Hearings before the Committee on Coinage, Weights and Measures," 59th Congress, 1st session, H. R. 8988.

1921-1922—"Metric System. Hearings before subcommittee of the Committee on Manufacturers, on S. 2267, A Bill to Fix the Metric System of Weights and Measures as the Single Standard of Weights and Measures for Certain Uses." 67th Congress, 1st and 2d session, 1926.

Text of the Britten Metric Bill—H. R. 10

The bill (H. R. 10) was introduced in the House by Mr. Britten, Illinois, Republican, on December 7, 1925, and was referred to the Committee on Coinage, Weights and Measures. Public hearings were held by the Committee on the bill on February 1, 2, 3, and March 4, 18, and 19, 1926.

A Bill extending the use of metric weights and measures in merchandising.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That from and after the 1st day of January, 1935, metric weights and measures, except as herein provided, shall be used for the following purposes:

(1) For buying or selling goods, wares, or merchandise, unless permission to use other weights and measures has been granted by the United States Department of Commerce or by a State department of weights and measures or by an authorized State official.

(2) For charging or collecting for the transportation of any goods, wares, or merchandise, unless permission has been granted to do otherwise by any of the authorities designated above.

Sec. 2. Not later than the 1st day of January, 1935, all postage, excises, duties, and customs charged or collected by weight or measure by the Government of the United States of America shall be charged or collected in terms of or according to metric weights and measures.

Sec. 3. Nothing in this Act shall be understood or construed as applying to—

(1) The construction or use in the arts, manufacture, or industry of any specification, drawing, goods, wares, merchandise, tool, machine, or other appliance or implement designed, manufactured, constructed, or graduated in any system of measurement.

(2) The ordering, buying, or selling of manufactured articles, such as tools, machines, or parts of machines, ordinarily known by or designated in terms of any other system of weight or measure.

(3) Any contract made before the 1st day of January, 1935.

(4) The survey or description of lands within the jurisdiction of the United States of America, or transactions in lands or real estate therein.

(5) The sale of goods, wares, or merchandise originally intended for any foreign country.

Sec. 4. After the 1st day of January, 1935, the terms "world yard" for the "meter," "world quart" for the "liter," and "world pound" for "five hundred grams" shall be recommended for international use and accepted as metric terms.

Sec. 5. All Acts or parts of Acts inconsistent herewith are hereby repealed but only in so far as they are inconsistent herewith; otherwise they shall remain and continue in full force and effect.

Sec. 6. Rules and regulations for the enforcement of this Act shall be made and promulgated by the Secretary of Commerce, who shall also take such steps as he may deem necessary to make this Act effective.

Members of Congress Discuss Britten Metric Bill

Pro

HON. FRED A. BRITTEN
U. S. Representative, Illinois, Republican

THE bill (H. R. 10) is quite a modification of former metric system bills. In the former bills it was aimed to cover all land transactions, real estate transactions, sales of farms and farm lands, etc., which, of course, brought much opposition from all over the country. The present bill is a greatly modified bill, providing only for the use of the metric system in commercial transactions, and giving the manufacturer and the business man ten years in which to make any changes which may be necessary in order to accommodate the desires of this bill.

I doubt if there is another piece of legislation anywhere on "Capitol Hill" that could get back of it the galaxy of big men that this bill has behind it. It has behind it such men as General Pershing, Thomas A. Edison, Samuel Vauclain, head of the Baldwin Locomotive Works, and men of similar type and standing.

I am certain that the metric system is due to come into our system of business, sooner or later, because it promotes efficiency and economy. I am satisfied from my travels abroad that it is the only system, and we will certainly adopt it. If England were to adopt it, we would follow; if we should adopt it, England would follow. There is a bill much more drastic than this now pending in the British Parliament. It provides for the adoption of the general use of the metric system.

When we took over the Philippines, when we took over the Hawaiian Islands, when we took over Cuba, when we took over Porto Rico, we insisted that they must use the metric system, because we realized that was the proper system of weights and measures for those countries. They have it now. They do not use our system. Our foot is different from the Canadian foot, and different from the British foot. Our pound is different from theirs. Practically every country in the world has adopted the metric system of weights and measures, excepting Great Britain and the United States. Surely, it is time for us to do it.

John Bassett Moore, member of the World Court, said: "I have long advocated the adoption of the metric system for the purpose of securing uniformity in the use of weights and measures throughout the world."

Charles W. Eliot, President Emeritus, Harvard University, said: "The adoption of the metric system by the United States would greatly reduce labor in trades because of the thorough decimal quality of the system, and would facilitate teaching of mathematics and applied sciences in schools."

General John J. Pershing said: "The experience of the American Expeditionary Forces in France showed that Americans were able readily to change our existing system of weights and measures to the metric system." That is a very important point in favor of the metric system. "I believe it would be very desirable to extend the use of the metric system in the United States to the greatest possible extent," says Pershing.

Dr. L. S. Rowe, Director General of the Pan-American Union, says: "The United States loses business in Latin America because of persistence in using customary

Continued on page 137

Con

HON. JOHN M. WOLVERTON
U. S. Representative, West Virginia, Republican

THE BILL (H. R. 10) is entitled "A Bill Extending the Use of Metric Weights and Measures in Merchandising," and provides that from and after the first day of January, 1935, metric weights and measures shall be used for buying or selling goods, wares and merchandise, unless permission to use other weights and measures has been granted by the United States Department of Commerce or by an authorized State official or a State Department of Weights and Measures.

The principal argument advanced by the proponents for the adoption of this proposed legislation and the metric system is that it will secure uniformity in the use of weights and measures throughout the world. It will be observed, however, that the very provision and terms of this proposed bill, if enacted into law, provide for confusion and would of necessity create the opposite result from that of uniformity. It will be noted that the bill provides that the United States Department of Commerce may authorize the use of other weights and measures. It further provides that an authorized State official or any State department of weights and measures may authorize the use of other weights and measures.

Under the provisions of this bill there could be at least forty-eight different systems of weights and measures in the various States of the Union, in addition to the right of the United States Department of Commerce and an authorized State official to prescribe the use of other weights and measures. In view of this situation I do not believe that the argument for uniformity is very convincing.

The bill also specifically provides that the metric measurement shall not apply to land or the sale of land, thereby exempting the farmers and the real estate men from the operation of this proposed law. This exception was no doubt made because of the fact that the farmers of the country had heretofore registered their protest against the use of the hectares for acres. This exception was no doubt made, not because of the love of the proponents of the bill for uniformity, but for political reasons.

In 1866 Congress passed a law making it permissible for all who desired to do so to use the metric system of weights and measures in all transactions of trade and commerce. This law does not seem to meet the demands and approval of the very zealous proponents of the metric system. Like most theorists, dreamers and reformers they take the position that if the people are not willing to accept their theory then they must be compelled to do so by force. They want to force the abandonment and outlawing of the inch-foot-ounce-pint system and the compulsory substitution of the European system of meters, liters and grams. The American people do not like to be forced to accept something which they consider to be detrimental to their interests. The word "compulsion" has an unpleasant and grating sound to them.

This proposed legislation is mandatory. It needs but little discussion or argument to show that mandatory legislation of this character would be a calamity to this country. Capital today invested in equipment and machinery

Continued on page 137

Should U. S. Adopt Metric System for General Use?

Pro

FREDERIC L. ROBERTS
Treasurer, Metric Association, New York

EIGHTY per cent of all nations, including 70 per cent of mankind, have adopted the decimal metric system of weights and measures—because of its simplicity and the convenient relationship of its units.

Those nations cannot and will not abandon this system, which in some countries has been in general use for over a century, and which has proven not only best for the country but best for international trade. It would be as impossible to expect them to change back as to expect us to change our decimal currency back to pounds, shillings and pence. Therefore the only possible path to uniformity is for the United States to adopt the system chosen by the majority of the world.

To adopt the metric system three changes are necessary—increase the yard 10 per cent to be the meter, the quart 5 per cent to be the liter, the pound 10 per cent to be 500 grams. The use of the meter, liter and gram, with their decimal divisions and multiples, will give the United States a system of weights and measures as simple as dollars and cents.

The rational simplicity which the metric standards will introduce into our local and interstate trade is a strong reason for their adoption. In the first place, the units used in merchandising are practical and convenient. They are the meter, or world yard; the liter, or world quart; and the 500-gram weight, or world pound. These metric units are on the decimal basis, so familiar to Americans and Canadians thru their use of decimal currency. With meters, liters and grams—as with dollars—we can automatically attain multiplication and division by simply moving the decimal point. The time-saving, error-saving features of this plan are obvious. The precision and exactness which the metric units will give to merchandising will be in marked contrast to the present uncertainty brought about by the existence of diverse measures, with ambiguous names.

The impractical clutter of weights and measures to which we of the United States cling at this late date is a relic of barbarism—no nation has ever adopted such a jumble; scores of nations have abandoned similar jumbles for the decimal metric measures. In the words of Andrew Carnegie, "Our present weights and measures are unworthy an intelligent nation today. We shall inevitably adopt the metric system."

Compared to the conglomeration of weights and measures which we have today the metric system can be printed on a post card:

	(*Correct English Spelling*)		(*Standard Abbreviations*)	
Length	10 millimeters	= 1 centimeter	10 mm	= 1 cm
	100 centimeters	= 1 meter	100 cm	= 1 m
	1000 meters	= 1 kilometer	1000 m	= 1 km
Capacity	1000 milliliters	= 1 liter	1000 ml	= 1 l
Weight	1000 grams	= 1 kilogram	1000 g	= 1 kg
	1000 kilograms	= 1 metric ton	1000 kg	= 1 t

For all practical purposes this table is sufficient and covers all we need know for general use.

Con

ASSOCIATION OF RAILWAY EXECUTIVES
Alfred P. Thom, Jr., General Solicitor

THE proponents of the Britten Metric System Bill contend, first, that the metric system is superior to the existing system and, second, that this bill is not drastic because it allows a reasonable interval of time for the adoption of the metric system and clothes the authorities specified in the bill with discretion to determine whether that system shall be used within their respective jurisdictions after the effective date stated in the bill. These provisions, they contend, will prevent the transition to the metric system from working undue hardships upon the industries of this country.

Whether the metric system is superior to the existing system need not be discussed here, because, in any event, the change to the metric system will work unnecessary injury to the carriers, shippers and the public.

An examination of some of the provisions of the Britten Bill will, however, disclose the fallacy of the reasoning of the proponents of this measure with reference to its latitude as to time and its elasticity in the establishment of the metric system.

This bill provides that the Federal Department of Commerce and authorized State officials shall determine whether, after January 1, 1935, the metric system shall be used in the purchase and sale of goods, wares and merchandise, and that the same authorities shall determine whether the railroads shall charge and collect, after that date, for the transportation of goods, wares and merchandise on the basis of this system. It is also provided in this bill that, at any time prior to January 1, 1935, the United States Government is authorized to adopt the metric system for charges and collections for postage, excises, duties and customs, but that after that time the metric system shall be used by the Federal Government in such transactions.

It will be observed that the bill does not prohibit the use of the metric system prior to the specified date, and, in fact, the Federal Government is specifically authorized to adopt the system at any time after this bill becomes a law.

It is obvious that the effect of these provisions is to force the adoption of the metric system, at the latest, by January 1, 1935. Attention is directed, however, to the fact that, while the Federal or State authorities have the discretion to permit the continuance in use of the present system after that date in the matter of the purchase, sale and transportation of goods, wares and merchandise, yet the Federal Government, in the character of transactions mentioned in the bill, must adopt the metric system by that time.

Appreciating that it must eventually conform to the metric system in these important transactions, the government will doubtless realize that, in the interest of economy, when confronted with the problem of replacements and increased facilities, it should adopt the new system well in advance of January 1, 1935. When the Federal government adopts this system, industry must, of necessity, conform to it, because of the many and diversified contacts

Continued on next page

Pro—continued

THEODORE H. MILLER

Works Manager, DeLaval Separator Co., Poughkeepsie, N. Y.

I WANT to stress the point about the little or no cost to change over a manufacturing establishment from the English to the metric system. With us this is not theorizing; we have done it. The cost of changing over our manufacture to the metric basis was practically nothing; it could not be found. We simply express sizes in the metric system because it is more simple and less liable to error than the English. In the machinery manufacturing business, there are no difficulties and practically no expense to the change; but, on the other hand, there are many advantages. It is our experience and belief that the slight cost there is will be more than paid in the very first year of operation. In our factory, where we have as high as 1,700 people, there are no difficulties. Anyone who has the intelligence to work in a plant, and hold a job there, can learn all that he needs to know about the metric system, as applied to the work he is doing, in 30 minutes. And there is no necessity of throwing away anything.

The DeLaval Separator Company changed to the metric system in 1908, scrapping neither machinery nor tools, but merely expressing the dimensions metrically.

Machines are made to function in the production of finished products, they are not made to any convenient integral measurement. Whether we measure the particular machine in inches or millimeters it must and will remain the same. Its size will depend upon its ability to function and meet the needs of the manufacturer.—Extracts, see 1, p. 143.

HERBERT T. WADE

Technical Editor, New International Encyclopedia

WHENEVER reforms are proposed in connection with systems of weights and measures, it is well to consider a few facts that are fundamental in metrology.

Looking back to times of the earliest civilization, it will be realized that standards were developed from body or other measures thru cooperative action of a group or tribe. The cubit or length of the forearm, certain gourds or shells as measures of capacity, beans or stones for units of weight, are typical of such standards. As civilization developed the units and standards became more definite; and soon it became a function of the governing power, whatever it might be, not only to determine and maintain them, but to enforce their use and prevent fraud. The rulers assigned this work to the priests and scientists or wise men of the tribe. When a code of laws developed, penalties for false weights and measures were duly specified. In other words in weighing and measurement since early times there has been involved a certain spirit of cooperation for mutual advantage and an exercise of authority to secure not only honesty and equity, but uniformity.

In the 20th century, standards for world trade and science are not the varying body measures of the ancients, nor those determined by two parties to a transaction, as in the case of a standard selected by a Chinese carpenter and his client, or even the standards that a town meeting or single trade might establish. They must be the standards that, in view of scientific, technical, commercial,

Continued on next page

Con—continued

ASSOCIATION OF RAILWAY EXECUTIVES—continued

which the government has with the business world.

A substantial majority of the larger rail carriers of this country operate through and do business in a number of States. For example, in the east, the Pennsylvania Railroad runs through fifteen States and the New York Central, ten. In the south, the Louisville and Nashville traverses thirteen States and the Southern Railway, twelve. In the west, the Milwaukee operates in fourteen States and the Santa Fe in eleven.

It is reasonable to expect that if this bill becomes a law some of the jurisdictions will require the metric system, while others will permit the present system to continue in use. The railroads, therefore, will be confronted with the problem of either using two systems in transactions incident to their operations, or of adopting the metric system in order to avoid the confusion and expense incident to a dual system of weights and measures.

There is no known trade, business or industry with which the carriers do not come in commercial contact. Their dealings with the United States government are of the most extensive character. The use of the metric system by the government or by some of the larger industries of this country would also naturally force the carriers to adopt that system.

A few illustrations will suffice to demonstrate the results which would follow the adoption of this system by the carriers. Between 75,000 and 100,000 tariffs of interstate rates are filed with the Interstate Commerce Commission. A substantially larger number covering the intrastate rates are filed with the various State commissions. All of these tariffs, with their innumerable rates, would have to be recast in accordance with the metric system. The expense incident to this change has been estimated to involve an amount as high as a hundred million dollars.

The necessity for the education of the carriers' employees and of the shippers in the application of the new system to transactions between them is readily apparent. Litigation would inevitably result which would be expensive to both parties. Every mile post would have to be changed to conform to the kilometer as the standard of distance, both as to locations and the markings on the posts. New posts would have to be added to take care of the increased units. There are about 262,500 mile posts now in service and the cost of the renumbering of the existing posts and installations of new posts has been estimated to be approximately one million dollars. Changes would, of necessity, have to be made in shop machinery and tools. This has been estimated to involve a cost of $216,000,000. The carriers' rolling stock, bridges and trestles are, in the majority of instances, standardized as to parts. These standard parts would have to conform to the new system, involving an expense difficult to estimate.

Since the change to the metric system would involve an expenditure of several hundred million dollars, the effect of this increased expense upon the rate structure is worthy of serious consideration.

In the final analysis, the problem presented is whether this country is prepared to burden its industries with the enormous expense and litigation and permit them to suffer from the confusion incident to the adoption of the new system in order to accomplish a change which is not necessary but, at the most, as claimed by its proponents, is merely desirable.

Pro—continued

HERBERT T. WADE—continued

economic and social considerations, are chosen by the keenest minds of the nations for actual use. Of course, the goal of ultimate progress is one simple and universal system of weights and measures for all civilized and commercial nations. That such a system is found in the International Metric System is admitted by practically all scientific men and metrologists, and that it should be adopted in the United States and Great Britain is the intelligently formed opinion of many practical men.

When it is proposed to introduce into general use the metric system of weights and measures, what are the practical sides of the matter? It is not a question of standards, for the meter and kilogram are today the prototype standards of our country. It is not a question of the availability of the metric units, for they have been used by many of the most important scientific and commercial nations of the world for over half a century. It is not a question of difficulty in passing from one system to another, for it has been universal experience that such transformations present few actual difficulties. The difficulty is rather in the mind which raises obstacles to a change, just as in Great Britain there is hesitation to abandon pounds, shillings and pence for a decimal currency, the superiority of which has been demonstrated in the United States, Canada and Europe.

In weights and measures as in currency the simplest system is the best, and this is true whether judged from the standpoint of the small user or that of the huge industry. The metric system, theoretically and practically, meets the requirements of a simple, logical and universal system of weights and measures better than any other so far devised, and it is one the use of which brings many advantages. For many years it has met the test in scientific, industrial and commercial life, notably in France, Germany and Italy where the problems were and are in no way different to those in the United States and Great Britain.

The metric system is and for many years has been legal in the United States and metric advocates best can secure its general adoption by actually using it and advocating decimal packing and reckoning. It has always been the opinion of the writer that if metric advocates would use the system more and argue less its adoption would be hastened. The American jewelry trade in 1913 adopted the metric carat of 200 milligrams and practically overnight began its use. In the following year similar action was taken in Great Britain.

Where an individual is able to control a product, or to purchase according to his own specifications, he can often secure great advantages and economies by using the metric system. Labelling of quantities in both customary and metric measures as is done with many articles for export, such as pharmaceutical and food preparations, automobile tires and photographic films, also helps to establish familiarity with the system.

It really is not difficult to change habits and fashions, especially in the United States. A change on a smaller scale has been taking place recently in the United States in substituting measures of weight for measures of capacity in the retail sale of foodstuffs such as vegetables. During the World War American and British soldiers learned

Continued on next page

Con—continued

THE CINCINNATI MILLING MACHINE COMPANY

Frederick A. Geier, President

THE Britten bill, H. R. 10, providing for the compulsory use of the metric system is a matter of grave concern to the manufacturing interests and their employees in this country.

The machine tool industry is the basic industry which establishes methods and incorporates in its product the mechanisms on which the entire metal working industry bases its productive processes.

All of the dimensions, adjustments and operations of American machine tools are based on the present system of measures, and to anyone who is involved in their use day by day, the possibility of a change to another system of measures, however gradual, presents a picture of confusion, waste and financial loss truly appalling. Hundreds of millions of dollars of equipment manufactured and installed in American plants would become obsolete and worthless, because it would be impossible to convert this machinery to the metric system. The two systems of measurement cannot exist, side by side, in the same plant.

This company, which has been engaged in the manufacture of machine tools for over forty years, finds the problem of adequately servicing the thousands of machines of its manufacture in use an exceedingly difficult and complicated one. This problem, calling for nice fits and close limits of fractions of thousandths which are involved in making interchangeable new parts for machines in service, involves a high degree of engineering and manufacturing skill.

To superimpose the task of attempting to re-design and refit this enormous amount of industrial equipment for the adoption of the metric system would be wellnigh impossible.

It may be difficult for those not closely familiar with the machine and tool industries to realize how revolutionary would be the passage of this bill in its effect upon them. The entire system of manufacture on which their life depends is based upon their gauges, tools, fixtures and equipment, and to deny them the use of this equipment (as it would be denied them under this bill) is equivalent to taking the farmer's land and agricultural machinery away from him. There is no doubt but that a large number of the concerns in these industries would certainly be forced into bankruptcy by the adoption of the metric system. We are quite confident that this can be easily demonstrated to anyone who will spend a few hours' time in any representative machine or tool plant, however much the metric system may appeal to him from a theoretical standpoint.

Metal-working industries are today carrying on their measurements in decimals of an inch and working to limits which vary from .005″ to less than .0001″. So far it has been absolutely impossible to find any interchangeable method of converting these close measurements to the metric system.

We are vitally interested in the promotion of export business. In answer to the more or less sentimental argument that our foreign business is dependent upon our adoption of the metric system, we call attention to the enormous progress of our manufacturers in securing the foreign trade without the help of a compulsory use of metric measurements. In our own instance, we have been sell-

Continued on next page

Pro—continued

HERBERT T. WADE—continued

not only to use, but to think in kilometers and meters from the maps and tables and distance posts, while liters were not only visualized but absorbed without difficulty. The adoption of the metric system does not mean that the gauge of a railway must be changed, or screw threads in air brake couplings, or anything else. Any standard can be expressed in any units, while it is quite true that nominal sizes do not always measure what they purport to be, as for example an "inch board" would be quite as near an even number of millimeters as it would be an exact inch. Modern manufacturing processes involve the use of gauges, patterns, jigs, and templets rather than extensive measurement. True designers and tool makers are concerned with measurements but these men can and do work to any scale or system.

Now the plan to adopt universally the metric system must be considered intelligently and without prejudice. What are the factors that should influence a change of systems of weights and measures? There should be secured increased—Simplicity; More easily related units; Uniformity; Universality; Invariability; Constancy and Convenience.

With these touchstones let us compare the Anglo-Saxon systems of weights and measures with the metric system, not only by reading about them, but by actual use and comparison. Use the metric system just as the students in the elementary laboratory are taught to use it and then express your opinion as to its merits. Consider fundamentals not merely arguments.—Extracts, see 5, p. 143.

MAJOR FRED J. MILLER

Past President, American Society of Mechanical Engineers
Past Member, Herbert Hoover's Committee on the Elimination of Waste in Industry, American Engineering Council
Former Editor, American Machinist

MANUFACTURERS opposing the adoption of metric weights and measures in the United States of America are subject to an illusion. This opposition arises from a concentrated and long continued effort to convince them that the adoption of the metric system would mean a great pecuniary loss for them. This is erroneous and should be corrected.

As I understand it the proposed bill permits any manufacturer to use within his own works any system he may prefer, and that it is only in his dealings with other people or with the public that he must use the metric system. I believe this feature of the bill eliminates the last feature to which valid objection can be made by anyone.

NOTE: There are on file with The Committee on Coinage, Weights and Measures of the House over 15,500 individual petitions from manufacturers and engineers alone, urging the passage of metric standards legislation.

GODFREY L. CABOT

President, National Aeronautic Association

A REPRESENTATIVE of the National Association of Manufacturers estimated at $10,000,000,000 the expense to manufacturers of making the needful change to the metric system. Under the terms of the Britten Bill

Continued on next page

Con—continued

THE CINCINNATI MILLING MACHINE CO.—continued

ing to metric countries for the past 30 years in constantly growing volume. We manufacture our product on the U. S. standard of measurements. In supplying as we do our product to some of the largest manufacturers in Europe, they have made no demand on us such as this bill would impose upon us. The facts are that in these so-called metric usage countries, many industries are compelled on certain elements in their machines to use the English or U. S. standard of measurements.

Why impose upon American industry a tremendous added cost which would vitally affect our ability to compete with the foreign manufacturer?

While the compulsory adoption of the metric system would mean an enormous loss to us as a company, we are very much more concerned over the disastrous effect that it would have upon the metal-working industry generally, in whose safety and prosperity not only ourselves, but the entire nation, is most vitally and fundamentally concerned.—Extracts, see 1, p. 143.

BURROUGHS ADDING MACHINE COMPANY

Standish Backus, President

IN the factory of the Burroughs Adding Machine Company (which is typical of many other factories) there are now in active use approximately 20,000 production engineering drawings and about 75,000 tool drawings. The dimensions on these drawings are all given in inches, common fractions of an inch or decimal fractions of an inch. Should the Britten bill become a law, it would mean that during the next ten years we would have to change all these 95,000 drawings to show the new notation (the equivalents of the present dimensions as they would appear under the metric system) and it would also be necessary for us to retain the old notation on account of the large number of repair parts and replacement parts which we must continually carry in stock for servicing the hundreds of thousands of Burroughs machines which are in operation. The life of our machine is such that old tools and patterns already made will be in use until long after the date set for the proposed bill to take effect. The dimensions of these old tools and dies will have to be carried in both the present system and the metric system. Improvements made upon existing machines will have to be dimensioned under the new law by the metric system. Such dimensions must be computed by translating the old dimensions, already on the machines, into the metric system. All our drawings for decades to come will have to carry, not only the metric system, but also inches, common fractions of an inch and decimal fractions of an inch. The cost of the time and labor consumed in introducing the metric system will be far beyond the value of any possible advantage to be gained by its installation. Furthermore, the resulting confusion and the errors arising from so many systems will introduce another element of cost, expense and annoyance, the volume of which it is impossible to measure.

I believe * * * that the advantages to be gained from international uniformity and the apparent simplicity of the decimal system are greatly outweighed by the loss to the American people arising from the cost of changing from our present standard—for this cost must necessarily be passed by the manufacturer to the ultimate consumer.—Extracts, see 1, p. 143.

Pro—continued

GODFREY L. CABOT—continued

not one of the items of expense that were mentioned would be necessary, for Section 3 expressly provides that nothing in the Act shall be understood or construed as applying to the construction or use in the arts, manufacture, or industry of any specification, drawing, goods, wares, merchandise, tool, machine, or other appliance or implement designed, manufactured, constructed or graduated in any system of measurement.

The only material expense that I should be put to in my manufacture would be that of replacing within ten years my present scales and measuring tapes with scales, measuring tapes, etc., of the metric system, and in this regard a great majority of manufacturers, merchants, and dealers in this country would be on substantially the same basis.

The passage of this measure would not increase or diminish to a marked degree the export of goods or the import of goods, but it would save an immense amount of human labor, therewith connected, and wipe out at one stroke the greatest portion of the disputes and misunderstandings that arise in this connection.

With regard to the plea from the gentleman representing a freight bureau, that this bill would throw an immense burden on the railroads: The railroads are at this moment expending over $100,000,000 a year on the publication of new freight tariffs, and while the expense of repainting the weights on something like 2,000,000 freight cars and the recalculating of tariffs throughout the country would be large in itself, it would be inconsiderable in proportion to the immense saving that would result to the railroads thereafter.

Think of the puzzlement of freight clerks over the hundreds of different kinds of bushels that are in vogue in this country, when they are trying to figure with a farmer how much it will cost him to ship his product to a given market.

I believe that the labor saved in computing bills, etc., would, in the first year, far more than compensate the expense of this change. Think, for instance, of the errors that result from the use of three different kinds of tons in the United States. I only learned yesterday that I was buying my coal by a different ton here in Washington from the one used in Boston, and that coke is sold here by a different ton than coal.

One of the opponents to the bill referred to the fact that pipes are not described by the metric system. Quite true, and I would make no change in that regard, nor would I make any change in standard threads of any kind, sort or description.

The decimal system is not a fetish that I worship; it is a convenience in trade, and wherever, in any detail, it would not facilitate trade, I would leave present conditions undisturbed.

The Britten Bill makes no change that is not a salutary change; we are simply proposing to travel the path that has been travelled with advantage by nearly every other nation in the world.

It was a very difficult road in France and took many national laws of increasing stringency and nearly two generations of effort on the part of the French Government to bring the metric system into common use. It seems to me the greatest contribution that the French nation has

Continued on next page

Con—continued

WESTINGHOUSE ELECTRIC AND MANUFACTURING COMPANY

E. M. Herr, President

THE Britten Metric bill (H. R. 10) calls for the compulsory use of the metric system of weights and measures on and after January 1, 1935.

For many years there has been the right to use the metric system in general industry and commerce in this country but this right has not been exercised for reasons which I believe to be controlling. The metric system, while advantageous in certain scientific lines, especially those where a great deal of calculating has to be done, is not advantageous in the mechanical work of industry generally, as this system does not lend itself as readily as does the English system to the working out of building and construction problems in machine shops. The English system is thoroughly established and while it can doubtless be improved, I believe that if any change is made in our present system of weights and measures, it should be along the line of improvement in the English system, rather than to change to a system entirely foreign to our practice and not as advantageous as the system we now have.

A careful study of this whole subject convinces me that the enforced adoption of the metric system in this country would not only bring enormous and unnecessary expense upon our industries, but would result in confusion that would be extremely detrimental to the best progress and development of the country industrially.

The patriotic course for Americans to pursue would therefore seem to be to endeavor to bring about the general adoption of an improved system of English measurements, with the use of which we are closely identified, rather than to give up this system, with its many advantages, for a system entirely foreign to our practices and the customs of our people.—Extracts, see 1, p. 143.

NATIONAL LUMBER MANUFACTURERS ASSOCIATION

Wilson Compton, Secretary and Manager

ON behalf of the lumber and wood-using industries of the United States, we wish to enter protest to the Britten metric system bill (H. R. 10) which would impose the compulsory use of the metric system of weights and measures on American industry.

The metric system is already permissable in the United States for those who desire it, and therefore the enactment of such legislation as is proposed in the Britten bill would only lead to unnecessary confusion and annoyance for the vast majority of American business organizations. The changes which would be necessary under this bill would disrupt the entire business fabric throughout the nation, and thus have a detrimental effect directly or indirectly upon every citizen.

Vast expenditures of money to install the proposed changes, which would, without question, be reflected in increased commodity costs, are alone sufficient to offset any advantages which the metric system might have over our present system of weights and measures. In the lumber and wood-using industries alone, the money outlay to meet such drastic changes, which would be compulsory, would run into millions of dollars. We believe that the provisions of the Britten bill could not in anyway improve the conditions of uniformity in our present system, and we feel confident that the proposed changes would greatly hinder business unnecessarily.—Extracts.

Pro—continued

GODFREY L. CABOT—continued

made to human progress, and one for which all the nations of the earth should be grateful to her.

It cannot be brought into popular use except by mandatory legislation, persistently enforced, and the burden of proof which justly rests on us as proposing the far-reaching change in national practice has been fully sustained by the experience of more than 100 years.—Extracts, see 1, p. 143.

DR. WM. JAY SCHIEFFELIN

President, Schieffelin & Co., New York
President, Citizens Union, New York

THE complication and the delay, not only in business, but in ordinary life, that this present lack of system entails upon us is a greater handicap than any of us appreciate. Nothing could be more stupid. The Metric Standards Bill provides that the government shall educate the people during the 10 years (transition period), and they will gradually get used to the metric system.

With the metric system there is a possible saving of time in:

1. Writing—about 50%
2. Weighing—about 45%
3. Calculating original formalae—50%
4. Calculating increase in original formulae—50%
5. Pricing—55%

With average saving of time of 56% in the above processes.

Druggists are familiar with the metric system—it is taught in the Colleges of Pharmacy and is used in the United States Pharmacopeia and the National Formulary.

A questionnnaire sent to members of the National Wholesale Druggists Association showed that the members are strongly in favor of the metric system. Thirty-five per cent of the members replying are already using the metric system in their manufacturing departments.

DR. HARVEY W. WILEY

I THINK all of us who are interested in the metric system, so-called, should try to use it at home. I have tried to introduce it into the family budgeting. I think if we could stress what our soldiers learned about the metric system in the World War, we would have a very responsive audience. Most of the soldiers in the late war were proud of what they learned in France, and when they came home they were familiar with kilometers and grams, and would use these terms in their speech.

In the radio, we have another opening. All the wave lengths so far have been given in meters. The other terms connected with radio should be metric also. We can talk about wave lengths in meters and everybody understands what we are saying, although they may not know exactly how much a meter is, but on hearing the term used constantly they will inquire.

We should ask our public schools also to teach the metric system in the problems which they give to school children in algebra and arithmetic. In other words, I mean that the problems should be expressed both in the old system, if that way is still used, and in the metric

Continued on next page

Con—continued

PITTSBURGH STEEL COMPANY

J. F. Hazen, General Manager of Sales

WE desire to record our opposition to the Metric bill (H. R. 10) which provides, effective January 1, 1935, that metric weights and measures, except as provided therein, shall be used for buying or selling wares or merchandise unless permission to use other weights and measures has been granted by Governmental bodies designated therein, and for charging or collecting for transportation, on the basic of metric weights and measures.

We cannot see that there are any advantages afforded us whereas we do feel that a great deal of confusion and lack of understanding as well as considerable expenses, will result in attempting to change our present standards which are so generally and thoroughly understood throughout the country and which standards through many years of usage have become a fundamental basis of our business.

The bill also provides that nothing therein shall be construed as applying to weights and measures in manufacture of materials which would involve the policy of one standard to manufacture and another to the sale of materials, thus further adding complicating difficulties.—Extracts, see 1, p. 143.

NATIONAL ASSOCIATION OF PAINT DISTRIBUTORS

T. A. Flynn, President

OUR Association wants to go on record as being irrevocably opposed to the Britten Bill, (H. R. 10.)

Should this bill pass, it will result in inevitable confusion and a tremendous cost to our industry which has only recently adopted a simplified program in both paint and varnish brushes. This simplification program has been adopted at a very large cost to our industry and a change to the metric system would mean a complete undoing of the present work and the necessity of starting anew.

We cannot see in what manner the ultimate consumer can be benefited by such a measure, but we can see how he will be forced to bear the burden of paying for the complete change of all our standards.—Extracts, see 1, p. 143.

THE AMERICAN BRASS COMPANY

W. H. Bassett, Technical Superintendent and Metallurgist

THE metric system has been made legal in this country but has not been voluntarily accepted. The proponents of the metric system now seek to make its use compulsory. The officers of the American Chemical Society and those of some other similar organizations have been working very strongly for compulsory use of the metric system, but many of the members of these Socities are not in favor of such a measure. The writer, for instance, has been for many years a member of the American Chemical Society, the American Institute of Mining and Metallurgical Engineers, and a number of the other prominent scientific societies and is most decidedly opposed to the compulsory use of the metric system.

In laboratories and scientific institutions in the hands of trained scientists, the metric system is and should be universally employed. In industry, however, it would be decidedly impractical. Industry is organized on the English system of weights and measures. All designs,

Continued on next page

Pro—continued

Dr. Harvey W. Wiley—continued

system. This would give an object lesson to the pupil which would be most valuable. The pupil would soon see how much easier it is to compute the data in the metric system than in the old way. Thus, these boys and girls will come to the point when they will demand that their teacher confine his instruction along this line to the metric system alone. We should use our influence on the teachers in our public schools. All scientific works on physics and chemistry taught in the public schools give the metric system of notation. Let us insist that arithmetic and algebra be taught in the same terms.

My first contribution to metric literature was made in the summer of 1873, at the meeting of the American Association for the Advancement of Science, at Portland, Maine. I read a paper at that meeting on, "The Introduction of the Metric System into Medicine." This, I believe, was the first attempt made along this line. It bore good fruit. In 1895 Congress passed legislation requiring the use of the metric system in the Medical Departments of the Army, Navy and Marine Corps. I was president of the United States Pharmacopoeial Convention for the decennial period of 1910-1920. In the Pharmacopoeia of that era, now superceded by a new Pharmacopoeia, the metric system was given preference on account of its simplicity and freedom from possible error. The new Pharmacopoeia, has, of course, followed the same plan. So the metric system has come into medicine and pharmacy to stay. Now we want to bring it into home budgeting and every day life. The trouble, worry and study which it will save our children are so great as to be almost incalculable when this is fully accomplished.

Joy E. Morgan

Editor, Journal of the National Education Association

I WISH everyone could visualize the time it takes to teach our children these confusing systems, and the utter hopelessness of the two million children in America trying to study and fix in their minds these units that we ourselves cannot remember. With the metric system they would be taught just one thing, and they would automatically know the rest. They would be taught the meter and its subdivisions. They would know that you could take one-tenth of that meter and square it and you would have the world quart, and that the world quart would weigh just one kilogram.

To get a basis for comparison I picked up a French text book, used in the French schools, and got a simple problem from it and expressed it in English and in metric terms, simply as a means of visualizing to myself what the difference between a problem that a French school child faces and one that an American school child faces.

We ask an American school child to calculate the volume of a cubical tank of 6 feet 9 and a half inches each way filled with water. We ask the French child to calculate the volume in meters and weight in kilograms of a cubical tank 2.07 meters each way, filled with water. Let us get away from words.

The French child puts the problem down as purely a decimal proposition. He works it out by forty-four characters and manipulating those decimals. The English or American child, in order to get that answer, has to write

Continued on next page

Con—continued

The American Brass Company—continued

drawings, gauges, dies and tools are made and have been standardized according to the English system, and the investment is enormous.

We know from experience that it is practically impossible for the workmen to estimate in tenths. It is easy for anyone to divide his unit of measurement into halves, quarters and eighths, but as soon as one is required to divide into tenths it becomes very difficult. In the metal industry it is customary to use gauges divided into decimal fractions of an inch, but any divisions of the gauge readings are always carried out by the workmen in common fractions. It is quite true that such divisions could be made by metric units, but the metric system would be extremely inconvenient to handle and when one thinks of changing the unit of measurement in all the manufacturing and transportation of an industrial country which is working successfully and without inconvenience, the difficulties to be encountered are stupendous.

The principal arguments are that the metric system is idealistic and we should follow the ideal. The argument of convenience is a very questionable one. The argument that we should follow the French and Germans is far from patriotic. The United States is the greatest industrial nation in the world and why we should change in order to follow the French and Germans is difficult to understand. Great Britain and the English Colonies use the English system of weights and measures which is practically the same as that used in the United States. If we follow the French and German we are then obliged to use a different system from that of the balance of the English speaking world.—Extracts, see 1, p. 143.

C. C. Stutz

Secretary, American Institute of Weights and Measures

I REPRESENT and speak for the American Institute of Weights and Measures, its members and friends, and on their behalf I state emphatically that the strongest kind of opposition exists against this bill (H. R. 10).

The bill compels the use of the metric system after a period of nine years, or after January 1, 1935, in the buying and selling of commodities bought and sold in units of weights and measures. In view of the fact that the use of the metric system is legally permissible, the word, "compulsory" has not a pleasant sound to our people. Ah, but some will say the bill states "unless permission to use other weights and measures has been granted by the United States Department of Commerce or by a State department of weights and measures or by an authorized State official." Thus the bill attempts to sugar coat its harsh provisions. It extends the permission to the transportation companies, but withholds it from two important government departments, the Post Office and the Treasury. They are not allowed to have permission. That is covered by section 2 of the bill, which provides:

> "Not later than the first day of January, 1935, all postage, excises, duties, and customs, charged or collected by weight or measure by the government of the United States of America, shall be charged or collected in terms of, or according to, metric weights and measures."

In other words, [these departments] are exempted from getting permission to use any other system.

The bill also particularly stipulates that contracts made

Continued on next page

Pro—continued

Joy E. Morgan—continued

down and add up and divide and work out 242 characters, multiplying by that plan the possibility of error in writing the wrong characters, and adding that much to his labor. The first child calculates that volume in cubic meters, and then knows that a cubic meter contains 1,000 liters. He simply moves his decimal point over three places, which he has already learned to do in the decimal system.

I do not think it has been sufficiently emphasized that throughout the entire civilized world all of our mathematical calculations are based upon the decimal system. Take the numerals 1926 in the calendar. The first place is given to units and each place to the left multiplies the value by ten up through tens, hundreds, etc. In the metric system those relationships remain exactly the same, which means that if the child is adding or multiplying these decimal units, he carries over in the same way that he would carry them over in ordinary numbers. Take three sets of figures, 777,777,777, write them one below the other, and start adding them. You add the first column of sevens and get 21. You carry the "two" over. If you are dealing in decimal units you carry it over and take nothing out. If that "twenty one" represents inches, you must divide it by twelve to calculate how much you are going to carry over. If it represents ounces you must divide it by sixteen to calculate how much you are going to carry over. Very few adults can do that.

I believe we create ten times as much material to be taught in our schools as we would have if we would throw our old units overboard and use what every body learns anyway, the decimal system.

EXHIBIT A.

What the French child learns:

Given a cubical tank 2.07 meters each way, filled with water.

To find: 1. Volume in cubic meters. 2. Volume in liters. 3. Weight of water in kilograms.

Multiplying width by length by height, the child gets the first result

```
  2.07
  2.07
  ----
  1449
 414
 ----
 4.2849
  2.07
 ------
 299943
 85698
 ------
```

(1) 8.869743 cubic meters

Since one cubic decimeter of water by definition is one liter, and since there are a thousand cubic decimeters in a cubic meter, the child divides by one thousand, by merely pointing off three places, getting the second result—

(2) 8869.743 liters (world quart)

Since a liter of water by definition weighs one kilogram, the child merely changes the name, writing—

(3) 8869.743 kilograms

It should be noted that the child can reduce any of these results to larger or smaller units merely by moving the decimal point to the left or right respectively. The child thus understands easily not only the units of each table, but relationships between the units in the different tables.

EXHIBIT B.

What the American child learns.

Given a cubical tank 6 feet 9½ inches each way filled with water.

To find: 1. Volume in cubic feet. 2. Volume in gallons. 3. Weight in pounds.

Note that the child first reduces this measure to inches, getting 81.5 inches.

Continued on next page

Con—continued

C. C. Stutz—continued

after January 1, 1935, must be expressed in terms of the metric system, thus nullifying partly the permission given to the merchant and compelling him to use both systems.

How many bureaus do you suppose will be necessary to issue the permission mentioned and the enforcement of the bill's provisions? We have a central government with 48 States. Will one bureau be enough in States having large cities, like the State of New York, with New York City, having several million inhabitants, or the State of Massachusetts? I think several hundred will be necessary. I know that one bureau would hardly cover the State of New York, when you consider the cities like New York City, Buffalo, Brooklyn, and a few others. Such provisions cannot be enforced unless penalties are provided. What will they be? Will they be uniform over the country? For what period of time will permission be issued? Will such permission be perpetual, or will it be for six months or two years?

A fitting title for the bill should read: "A bill to Promote Complications in the Daily Affairs of the Nation and to Compel the Use of a Dual System of Weights and Measures." For the purpose of creating a maximum of confusion in industry and trade, as well as undermining the uniformity we now enjoy, the bill is admirably drawn. The ulterior motive and real object of the bill is to be an entering wedge for the purpose of opening wide the gates to future drastic metric legislation and continued metric propaganda.

Proponents of the metric system claim that once the use of the metric system is made compulsory a great deal of every school child's time could be saved, first because the system is so simple it could be taught, it is maintained, to anybody in 15 minutes and second, because the school child would not be required to spend time in becoming acquainted with our present customary system. This time saving has been estimated by metric advocates not in hours or days but in years per individual.

These assumptions, I claim, are wrong. The first one because to simply learn the rules for the proper shifting of the decimal point in the metric system whether 2, 3, 4, 6, or 9 places requires a positive knowledge of the metric units of length, area and volume together with their different subdivisions, a knowledge not obtainable in 15 minutes, but requiring many times 15 minutes.

The second assumption is precluded by the bill itself, because it exempts all land measurements, not only farm land measurements, but also suburban sites, city lots, streets, sidewalks and building sites. In measuring land you cannot measure one parcel in one system and an adjoining one in another without a confusion absurd to contemplate.

It follows, therefore, that the school child will need some knowledge of land measurements. Therefore if this bill is passed two systems will have to be taught in the schools instead of one as at present. Common sense will tell you that more time is required for the former than for the latter. The reputed time saving thus becomes a myth.

It may be known to you that the question: "Shall the metric system be taught in our public schools?" has had careful consideration by experts. I have before me the fourth year book entitled "The Nation at Work on the

Continued on next page

Pro—continued

JOY E. MORGAN—continued

The child then multiplies width by length by height to obtain the total number of cubic inches in the tank.

```
  81.5
  81.5
 ------
  4075
   815
  6520
 ------
 6642.25
  81.5
 ------
 3321125
  664225
 5313800
 ------
541343.375 cubic inches
```

(1) The child then divides by the number of cubic inches in one cubic foot (1728—a figure which is not easy to remember) to get the first result—the volume in cubic feet.

```
                313.277 (plus) (cubic feet)
              ------------
1728)541343.375
      5184
     ------
      2294
      1728
     ------
      5663
      5184
     ------
      4793
      3456
     ------
      13377
      12096
     ------
      12815
      12096
     ------
        719
```

(2) To get the volume in gallons, the child divides the number of cubic inches by the number of cubic inches in one gallon (231—another figure not easy to remember).

```
                2343.477 (plus) (No. of gallons)
              ------------
231)541343.375
    462
   ------
    793
    693
   ------
   1004
    924
   ------
    803
    693
   ------
   1103
    924
   ------
   1797
   1617
   ------
   1805
   1617
   ------
    188
```

(3) To get the weight in pounds, the child multiplies the number of cubic feet by 62½, the number of pounds in one cubic foot of water.

```
  313.277 (plus) (cubic feet)
    62.5
 ---------
 1566385
  626554
 1879662
 ---------
19579.8125 pounds
```

Note that if the child wishes to reduce any of these results to larger or smaller units he must multiply or divide by such clumsy equivalent as 27, 1728, 4, 8, and 16.

Continued on next page

Con—continued

C. C. STUTZ—continued

Public School Curriculum" published February, 1926, by the Department of Superintendence of the National Education Association of the United States, Washington, D. C.

From page 27 I quote: "Since the Commission on Curriculum is chiefly an organizing agency, it sought to promote the Cooperative Plan of Curriculum Revision by organizing subject committees in each of the twelve subjects in which the cooperating school systems had expressed greatest interest. Practical school administrators who represent the field were selected as chairmen of these committees. Each subject committee included at least one research worker or specialist in that particular subject who also acted as an adviser."

"The Department of Superintendence and the Research Division have acted as a clearing-house for the 300 cooperating school systems and the thirteen national committees."

One of the twelve national Committees is the one on Arithmetic. The thirteenth Committee is a general Coordinating Committee. The names of the 10 members comprising the Arithmetic Committee are given on page 173. From the report of this Committee I quote: (page 175). "It is safe to say that most superintendents of schools today would agree to the complete elimination of the following processes: from this list I only mention: "Apothecaries' weight, Troy weight, The Metric System."

I maintain that these three subjects have interest and value only for those who fit themselves for special vocations or studies where they form an integral part of their professional education, the public at large does not use them. Apothecaries' weight is used by medical men and druggists. Troy weight by those having to do with precious metals, and the metric system by scientists, laboratory chemists and such as find it convenient in their calling. These conclusions are in full agreement with the recommendations of this national Committee on Arithmetic to eliminate them from the curriculum of the public schools.—Extracts, see 1, p. 143.

NATIONAL ASSOCIATION OF MANUFACTURERS

Nathan B. Williams, Associate Counsel

THE advocates of metric legislation stress the advisability of uniformity, and urge a world system of weights and measures based on one standard, the theoretical meter. While the use of the metric system has been permissible in the United States for more than half a century it has not made any substantial progress in American industry. There must be reasons much stronger than mere inertia.

Likewise the advocates of the metric system constantly confuse it by calling it the "decimal system." While the metric system does use decimals, such use is not peculiar to the metric system. In fact in the development of machinery and tool manufacture in this country, and the growth of its world preponderance in manufactured production, the use of decimal measurements has grown by leaps and bounds until now practically all American manufacture expresses its measurements in inches, or feet, or decimals thereof, until the modern American manufacturer uses measurements daily in terms of tenths, hundredths, thousandths, or even millionths of an inch.

The gratuitous assumption that our share of world

Continued on next page

Pro—continued

JOY E. MORGAN—continued

Note also that there is a loss in accuracy of about eleven pounds due to the dropping of clumsy fractions.

This is but one type of problem. There are many others which must be taught if the child is to be able to calculate in various kinds of measures. These other types involve: addition; subtraction; multiplication; division; and reduction to larger and smaller units in each of the different and unrelated tables of measures; length, area, and volume, capacity, weight, liquid measure, dry measure.

The result is that the American child learns less and takes longer to do it than his French or German cousin. Because of poor tools he is not able to develop the skill in handling measures that is enjoyed by children in countries using the metric system. Comparatively few grown men and women in America can give easily the various tables of measures used in our daily life.

I think this is a heritage every adult owes to a child. If there is anything we can do to make his job easier, we should do it. As the great patriots, 150 years ago worked to give this country political freedom, I wish that the Sesqui-Centennial in Philadelphia could give the American school child freedom from these out-of-date antiquated systems of weights and measures, so that he could have time to study subjects that are really much more beneficial.—Extracts, see 1, p. 143.

SAMUEL W. STRATTON

President, Massachusetts Institute of Technology
Former Director, Bureau of Standards

WITH the growing use of the metric system at home and abroad, it is clear that not only is the policy of extending its use in manufacture warranted, but it is essential. A well-informed exporter said recently: "Our foreign trade can never be satisfactory until we meet the requirements of the foreign market." The same exporter attributed the difficulty in securing and holding foreign trade to our failure to use weights and measures intelligible to and usable by the foreign countries concerned.

The reasonable use of the metric system to the extent demanded by export business will break down three serious obstacles to trade extension in Latin America (where the metric system has been adopted and is in use.) These three obstacles which will be largely removed are (a) the nonusability of nonmetric products in metric countries (in some cases); (b) ignorance of foreign market conditions, opportunities, and statistics which to the nonmetric business man are not well known; and (c) the ignorance of those foreign countries as to our available products and their units and prices, owing chiefly to inability on the part of the great mass of possible buyers to readily understand our measures.

The practical danger in using the metric system is not that we may go too far, but that we shall not go far enough. The "easiest way" may in the end be costly. Merely to price-list products in metric units may be ample in many cases. In others the goods must be packed to the acceptable sizes current in the foreign markets whose trade we seek. In still others, as in the case of drills, measuring tools, gauges, etc., the sizes must be strictly metric to meet the needs of the shops in metric countries.

Continued on next page

Con—continued

NATIONAL ASSOCIATION OF MANUFACTURERS—continued

trade is minimized by failure to use the metric system is an assumption not founded upon fact, and presupposes a lack of judgment and vision on the part of American manufacturers, in no wise justified when it is remembered that the products of our factories exceed the combined output of those of all the rest of the world.

American manufacturers are not slow to adopt any means or methods whereby their business may be expanded, and they can be safely trusted to produce their goods in accordance with the desires of their customers, maintaining their quality and holding down their cost.

As a piece of draftsmanship the present bill is unique. Its announced purpose is to promote uniformity in weights and measures in commercial transactions, but one needs to read only the first paragraph of the bill to observe that it has in it inherent possibilities for numerous standards of weights and measures, and could readily produce untold confusion in our commercial and industrial structure.

The mentioned paragraph of the bill reads as follows:

"That from and after the 1st day of January, 1935, metric weights and measures, except as herein provided, shall be used for the following purposes:

"(1) For buying or selling goods, wares or merchandise, unless permission to use other weights and measures has been granted by the United States Department of Commerce or by a State department of weights and measures or by an authorized State official."

It will thus be observed that although the measure might establish a metric system that the Department of Commerce could fix a different system, and that the 48 States through their State department of weights and measures might authorize other or different systems, and that it is quite possible for the State Legislatures to authorize State officials having charge of weights and measures in particular cities to establish yet other or different systems. This is but one of the numerous incongruities and inconsistencies in the pending measure which, according to its advocates, is intended to promote the adoption of a simplified system.

Another objection on the part of manufacturers is to the confusion and cost which would occur in any attempt to arbitrarily fix a date for the establishment of the new system. We do not live in a world made to order. Our industrial production is of such magnitude, and its ramifications so infinite that it would stagger the capacity of an Einstein to attempt to calculate the ramifications and expense of the cost of attempting to change our system of weights and measures.

The Department of Commerce has been doing useful work for some years in attempting to promote simplification in size, styles and patterns of many of the common articles of commerce. The infinitude of this task becomes constantly apparent, although excellent results are accomplished. When sizes of paper, books, forms and documents are considered it must be remembered that bookcases, filing cabinets, envelopes, typewriters, and innumerable other related articles must be adjusted to the new size. These then in turn affect the use of space in box-cars, trucks, office buildings, warehouses, etc. The advocates of the measure point out that they do not expect to change land survey, and yet these are based upon inches, feet, rods and miles. Thus the interminability, annoyance, complications and expense become evident to

Continued on next page

Pro—continued

SAMUEL W. STRATTON—continued

Exporting and commission firms have favored the metric system and take advanced ground in this subject.

It must be admitted that the American manufacturer, however progressive in pushing methods of making things for domestic use, has not attacked the foreign trade problem with his usual resourcefulness. It is doubtful whether manufacturers fully realize the merits of the metric system and what it means for world trade. Under such circumstances, to ask them whether they consider it wise to extend its use in their factories is beginning at the wrong end. The Government should to a great extent take the lead and cooperate with the exporters in educating the manufacturer to the intrinsic merits of the metric system both because of its scientific perfection and because of its world-wide use.

The extent to which the metric system is used in foreign countries is not realized even by well-informed manufacturers.

Commerce, technology, and science have, on account of their international character, availed themselves of the advantages of the metric system more than manufacturing, which is local, and, unlike exporting, not in direct touch with world markets. Hence science and commerce with their world-wide outlook should be the advisers of industry, and their conclusion is that the first principle is to supply what the customer needs, and that international business requires international weights and measures.—Extracts, see 2, p. 143.

ARTHUR E. KENNELLY

Professor, Electrical Engineering, Harvard University
Past President, American Institute of Electrical Engineering

A SIMPLE, practical and scientific system of units requires to be a decimal system, in order to make it possible to transfer from a larger to a smaller denomination, or vice versa, by a mere change of the decimal point. This generally acknowledged fact is instanced by our American currency—dollar, cent, mill. There is one unit, the dollar; because a sum of money expressed in dollars is instantly converted into cents, or mills, by a shift of the decimal point, without any appreciable mental effort. In the British Isles, however, the currency not being decimal, but divided into guineas, pounds, crowns, ½-crowns, florins, ½-florins, shillings, ½-shillings, pence and farthings, there are 7 different units. Pencil and paper will generally be required by any but skilled mental arithmeticians to transfer a sum of British money from one expression to another.

To an American the superiority of decimal currency over the non-decimal currency of his British cousin is so self-evident as to require no emphasis. What applies to currency units applies to units of length, area, volume and weight. A simple rational system of such measures must, as is generally admitted, be a decimal system. In this way large and small units may be related like the dollars, cents, mills of United States and Canadian currency.

In British and American measures of length we have the following units, all taught in the schools and all used more or less—league, statute mile, furlong, engineer's chain, surveyor's chain, rod, pole, perch, yard, foot, engi-

Continued on next page

Con—continued

NATIONAL ASSOCIATION OF MANUFACTURERS—continued

the thoughtful, and it is seen that even if such legislation was passed we would still be compelled to contend with not one, but two systems of weights and measures.

Present figures indicate that there is approximately $30,000,000,000 invested in American manufacturing plants. There are approximately 12,000,000 wage earners employed in such plants. Competent estimates indicate that it would require at least $300 per employee to install the equipment necessary to conduct our operations on the metric basis. This would involve an outlay probably in excess of $3,600,000,000, and in the meantime for a varying period, depending on the character of the industry, the old equipment would have to be maintained in order to supply replacements, parts and duplicates of existing products required which have been manufactured under our present system.

The proposed legislation is a shining example of how theorists would attempt to remake the world and its processes by legislative fiat, counting neither cost nor confusion.

NATIONAL FOUNDERS ASSOCIATION

William H. Barr, President

ON behalf of the National Founders Association I beg to express our opposition to the enactment of H. R. 10, proposing the compulsory use of the metric system for various purposes, after January 1st, 1935.

The National Founders Association is composed of some six hundred of the larger foundry concerns in the United States.

Its members are engaged in both foreign and domestic trade. The Britten bill has been considered by the Administrative Council of the Association, composed of seventeen representative manufacturers. The Council unanimously renews the opposition expressed by the Association to the compulsory adoption of the metric system.

We recognize that manufacturers, and the buying and selling of manufactured articles, provided they are known or designated in terms of the present system, are excepted from the bill. The ambiguity of the latter exception would present many difficulties in our own industry.

Our relations with the general trade and transportation are so intimate and so greatly influence the conduct of our own business that a dual system of weights and measures would work serious confusion in producing, ordering, and accounting, and result in serious loss.

The customary use of our existing system of weights and measures, accompanied by a permissive use of the metric system in accordance with requirements of production and sale, works well. We know from wide contact and experience with the general body of American manufacturers engaged in domestic and foreign trade that they share such opinion.

Nothing in the existing situation prevents the use of the metric system for scientific purposes or in response to business demand. The attempt to compel its use within a year or ten years merely postpones the inevitable confusion and loss consequent upon such a policy.

The distinctions which the bill seeks to establish between transportation, merchandising and manufacturing are theoretical. In practical everyday affairs two systems of weights and measures would work chaos.—Extracts, see 1, p. 143.

Pro—continued

ARTHUR E. KENNELLY—continued

neer's link, span, surveyor's link, hand, inch, line. Those numerous units involve more than 100 cross-connecting ratios.

In the metric system there are the meter (about 10% longer than the yard) and its decimal derivatives, all evaluated at a glance by a shift of the decimal point.

The same comparison and contrast apply to volumes. We have the cubic inch, cubic foot, cubic yard and cubic rod. World metric measure has the cubic meter and decimal derivatives. That is to say, there is virtually but one unit.

For the dry measure of volume, we now have, to make our confusion complete, pints, quarts, pecks, bushels, barrels, quarters and chaldrons. Moreover, our bushels, although nominally the same, actually vary according to the commodity measured; there being, according to "The World Almanac," some 20 different sorts of bushels by the laws of America, from a bushel of bran weighing 20 pounds avoirdupois to a bushel of fine salt weighing 167. Add to this joy the recollection that there is a difference of about 8% between the British and American dry bushels, pecks, quarts, etc., and we attain the unhappy result that none can say precisely what quantity is meant by the term "bushel," save by chance.

In regard to the unit of weight, the metric system has the gram. The weight of any object is brought immediately before the mind in relation to that of any other object, large or small, since virtually one unit—the gram—is always used.

In contrast with this simple expression of weights in the metric system, we have in this antique jumble 3 kinds of weights; namely, apothecary's weight, troy weight and avoirdupois. The first 2 mentioned have their ounces in common but differ otherwise. It is impossible, therefore, to determine, except by context, precisely what is meant by the word "pound" as a unit of weight in English-speaking countries. It may be the troy pound of 5,760 grains or the avoirdupois pound of 7,000 grains.

In avoirdupois weight there are 9 units: the cross-ratios are 45. Moreover, there are 2 tons in the United States of America, a ton of 2,240 pounds and a ton of 2,000. In general literature it is frequently impossible to determine which of these tons is referred to.

When liquid measure is considered, the medley and jumble of British measures is, if possible, worse. The gallon in common use in Britain is 20% larger than the gallon in use in the United States. The same ratio affects all the subdivisions—pints, quarts, and so on. It is often difficult to tell whether the British beer measures or American wine measures are referred to when the terms are encountered in literature.

If we should attempt to collate all the British and American units of volume, both "dry" and "fluid," and express each unit of the table in terms of all the others, the table would contain more than 1000 entries or cross-ratios. In the corresponding table of the metric system there would be virtually only one unit, and all others would be expressed therein by a shift of the decimal point.

If an attempt were made deliberately to construct a medley of weights and measures as a burlesque, for sensible, practical people to make sport of, it may be ques-

Continued on page 137

Con—continued

RETAIL DRYGOODS ASSOCIATION, NEW YORK

W. S. Trenholm, Secretary

IF this bill (H. R. 10) becomes a law the transactions which the stores have every day with the public, which of course are very numerous, including people of all classes, would have to be conducted under the metric system. That would involve the teaching of everybody to think in the metric system, even the slowest people; and that is the real difficulty.

It is not a question of the merit of the metric system, for I think that would be conceded by everybody, but it is the external complications that would arise from transferring the present business transactions from the English system to the metric system. You are dealing with the public and the public must understand how to express themselves in the metric system and to think in the metric system, and not only that, but the [habits of the] sales people in the stores and the people in the accounting and receiving departments and all departments in the stores would have to be revolutionized.

At the present time all the stores have what they call measuregraphs, which are machines for measuring goods. Some of the stores have spent as high as $15,000 in equipment with these machines. A fabric is run through one of these machines and it will tell you the measurement and price, based on the English system. People who come into the stores to buy have a very definite idea of what you mean when you say a yard or a quarter of a yard, or if they are buying by weight, what a pound signifies. But they would have to be trained to think in the metric system, to express their views in the metric system.

Think about the complications and difficulties that would result from the enforced installation of the metric system, and the hardships that would be visited upon the stores dealing with the public in the multiplicity of transactions that are required. The chaotic conditions that would result are difficult to imagine.

Mr. Chairman, if you had to buy shoes, or shirts or collars in stores and describe what you wanted in the metric system, what would you do? Remember, I am talking to some one whose intelligence is far above that of the people you meet in the street. You would have to train yourself to explain yourself sufficiently in the metric system, as to the dimensions of a hat, a shirt or a collar. I think this should enable you to visualize the difficulty that might arise in the retail dry goods trades of the country. The dry goods business forms an enormous proportion of the business that is conducted in this country.—Extracts, see 1, p. 143.

THE PIERCE-ARROW MOTOR CAR COMPANY

THE Pierce-Arrow Motor Car Company desires to register a protest against the enactment of the Britten Metric legislation. We feel that it would be very unjust to impose this law on the manufacturing plants of this country. It would mean the obsolescence of millions of dollars worth of machinery and tools. It would be the equivalent of creating a tax from two hundred to a thousand dollars on every mechanic in the country, who uses his own measuring tools. The average, probably would be around four hundred dollars. This would involve the stone-mason or bricklayer with his twenty-five cent rule

Continued on page 137

The White House

EDITOR'S NOTE: In the October, 1925 number, THE CONGRESSIONAL DIGEST inaugurated a new department. This department will report each month the outstanding public matters which have had the attention of the President during the preceding month. Such public matters will include appointments made by the President, addresses delivered by the President, executive orders, and proclamations issued by the President, etc. In the January, 1924 number of THE CONGRESSIONAL DIGEST, the Hon. Wm. Tyler Page, Clerk of the House of Representatives, U. S. Congress, fully described the position of the Executive under the Constitution. The July-August, 1924 number of THE CONGRESSIONAL DIGEST was devoted to a detailed account of the early and present system of election of the President, together with an article on the Powers and Duties of the President under the Constitution.

The President's Calendar

For the Period March 1 to 31, 1926

Important Executive Civilian Nominations Confirmed by the Senate:

Treasury Department

Mar. 10—Robert J. Mawhinney to be Solicitor of the Treasury Department.

Mar. 30—Harry K. Daugherty to be Assistant Solicitor, Treasury Department.

Department of Labor

Mar. 22—Benjamin M. Day to be Commissioner of Immigration, New York.

The Judiciary

Mar. 6—John R. Desha to be judge, circuit court, first circuit, Territory of Hawaii.

Mar. 17—James A. Cobb to be judge of the municipal court, District of Columbia.

Miscellaneous Establishments

Mar. 10—Charles W. Hunt to be a member of the Federal Trade Commission.

Mar. 26—Thomas F. Woodlock to be commissioner on the Interstate Commerce Commission.

Nomination rejected:

Mar. 17—Wallace McCamant, of Oregon, to be United States circuit judge, ninth circuit.

Executive Orders:

Mar. 6—The President issued an executive order providing for the temporary withdrawal of approximately 29,880 acres of public lands in Nevada pending its exchange for State owned lands.

Mar. 10—The President issued an executive order withholding a number of tracts of public land in Lake county, Florida, from settlement or other disposition pending classification and legislation.

Mar. 31—The President issued three executive orders providing for the extension of Government guardianship for a period of ten years over the allotments of following Indian tribes: Yankton Indians of South Dakota; Ponca Indians of Nebraska; and Grande Ronde Indians of Oregon.

Proclamations:

Mar. 3—The President issued a proclamation designating April 18-24, inclusive, as the 1926 American Forest Week, and recommended to the Governors of the various States that they also designate the week of April 18-24 as American Forest Week and observe Arbor Day within that week if not in conflict with law or accepted custom.

Mar. 6—The President issued a proclamation raising the import tariff on butter from eight to twelve cents per pound. The new duty will become effective thirty days from date of proclamation.

Legislation Approved:

Mar. 1—Act (H. R. 5850) authorizing apprn. for payment of certain claims due Sioux Indians, etc. Public Law No. 32.

Mar. 1—Act (H. R. 97) authorizing expenditure of $50,000 from tribal funds of Indians of Quinaielt Reservation, Washington, for completion of the road on said reservation. Public Law No. 33.

Mar. 2—Act (H. R. 5959) making apprn. for Treasury and Post Office Departments for fiscal year ending June 30, 1927. Public Law No. 35.

Mar. 8—Act (S. 2825) to grant consent and approval of Congress to South Platte River compact. Public Law No. 37.

March 11—Act (H. R. 7173) authorizing Secy. of the Interior to dispose of certain land in Boundary Co. Ida., and to purchase land to allot to Kootenai Indians. Public Law No. 42.

Mar. 11—Act (S. 2041) to provide for widening of First St. between G St. and Myrtle St., northeast, Washington, D. C. Public Law No. 43.

Mar. 12—Act (S. 1129) authorizing use for permanent construction at military posts of proceeds from sale of surplus War Department real property, and authorizing the sale of certain military reservations, etc. Public Law No. 45.

Mar. 15—Joint resolution (H. J. Res. 197) to regulate expenditure of apprn. for Government participation in the National Sesquicentennial Exposition. Public Res. No. 8.

Mar. 16—Act. (S. 1343) for relief of soldiers discharged from Army during World War because of misrepresentation of age. Public Law No. 46.

Mar. 16—Act (S. 1430) to establish a Board of Public Welfare in and for the District of Columbia, etc. Public Law No. 47.

Mar. 18—Act (H. R. 60) to reclaim certain lands in Indian and private ownership within or adjacent to Lummi Indian Reservation, Washington. Public Law No. 49.

Mar. 18—Act (H. R. 6374) to authorize employment of consulting engineers on plans and specifications to the Coolidge Dam. Public Law No. 50.

Mar. 22—Act (H. R. 8652) to provide for withdrawal of lands as camp ground for Indian school at Phoenix, Ariz. Public Law No. 52.

Mar. 22—Act (S. 122) granting consent of Congress to Iowa Power and Light Co. to construct, maintain, and operate a dam in Des Moines River. Public Law No. 72.

Mar. 23—Act (H. R. 8590) granting lands to city of Sparks, Nev. for a dumping ground for garbage, etc. Public Law No. 74.

Continued on page 143

The Supreme Court of the United States

EDITOR'S NOTE: This department of THE CONGRESSIONAL DIGEST began with Vol. 3, No. 1, and is devoted to a brief non-technical review of current decisions of the U. S. Supreme Court which are of general public interest. The June, 1923, number of THE CONGRESSIONAL DIGEST printed the provisions of the Constitution of the United States upon which the Judicial Branch of our Federal Government rests. This number contained an account of the U. S. Supreme Court and the system of inferior federal courts, the relation of the Judicial Branch to the Legislative and Executive Branches of the Federal Government, and the relation between the Federal Judiciary and the States. The U. S. Supreme Court, its present procedure and work, were also described.

The Court adjourned on Monday, March 22 until April 12, 1926.

THE OCTOBER, 1925 TERM

October, 1925—June, 1926

Alfalfa Weevil Quarantine Case

The Case—No. 187. Oregon-Washington Railroad & Navigation Co., Plaintiff in Error, vs. State of Washington. In Error to Supreme Court of Washington.

The Decision—The decree of the Supreme Court of Washington was reversed.

The opinion of the Court was delivered by Mr. Chief Justice Taft, March 1, 1926, and is in part as follows:

This was a bill of complaint filed by the State of Washington against the defendant, the Oregon-Washington Railway & Navigation Company, an interstate common carrier. The bill averred that there existed in Utah, Idaho, Wyoming, Oregon and Nevada, an injurious insect popularly called the alfalfa weevil; that the insect multiplied rapidly and was propagated by means of eggs deposited upon the plant; that when the hay was cured, the eggs clung to the hay; that the eggs and live weevils were likely to be carried to points where hay was transported, infecting the growing crop there; that a proper inspection to ascertain the presence of the eggs or weevils would require the tearing open of every bale of hay and sack of meal, involving a prohibitive cost of inspection, and that the only practical method of preventing the spread into uninfested districts was to prohibit the transportation of hay or meal from the district in which the weevil existed; that the pest is new to, and not generally distributed within, the State of Washington; that there is no known method of ridding a district infested of the pest; that the Washington Director of Agriculture with the approval of the Governor of the State, on or about September 17, 1921, promulgated a quarantine regulation and order under the terms of which he declared a quarantine against all of the above described areas and forbade the importation into Washington of alfalfa hay and alfalfa meal, except in sealed containers, and fixed the boundaries of the quarantine. The bill further averred that the defendant, knowing of the proclamation, and in violation thereof, had caused to be shipped into Washington, in common box cars, and not in sealed containers, approximately 100 cars of alfalfa hay, consigned from various points in Idaho and through Oregon and into Washington, in direct violation of the quarantine order; and that unless enjoined, the defendant would continue to make these shipments from such quarantined area.

A temporary injunction was issued, and then a demurrer was filed by the defendants. The demurrer was overruled. An answer was filed and in each of the pleadings was set out the claim by the defendant that the action and proclamation of the Director of Agriculture and the Governor, and chapter 105 of the Laws of Washington of 1921, under which they acted, were in contravention of the interstate commerce clause of the Federal Constitution, and in conflict with an act of Congress.

By chapter 105 of the Washington Session Laws of 1921, p. 308, the Director is given the power and duty, with the approval of the Governor, to establish and maintain quarantine needed to keep out of the State contagion or infestation by disease of trees and plants and injurious insects or other pests.

In the absence of any action taken by Congress on the subject matter, it is well settled that a State in the exercise of its police power may establish quarantines against human beings or animals or plants, the coming in of which may expose the inhabitants or the stock or the trees, plants or growing crops to disease, injury or destruction thereby, and this in spite of the fact that they necessarily affect interstate commerce.

By the Act of Congress of August 20, 1912, 37 Stat. 315, c. 308, as amended by the Act of March 4, 1917, 39 Stat. 1165, c. 179, it is made unlawful to import or offer for entry into the United States, any nursery stock unless permit had been issued by the Secretary of Agriculture under regulations prescribed by him.

It is impossible to read this statute and consider its scope without attributing to Congress the intention to take over to the Agricultural Department of the Federal Government the care of the horticulture and agriculture of the States, so far as these may be affected injuriously by the transportation in foreign interestate commerce of anything which by reason of its character can convey disease to and injure trees, plants or crops. All the sections look to a complete provision for quarantine against importation into the country and quarantine as between the States under the direction and supervision of the Secretary of Agriculture.

With such authority vested in the Secretary of Agriculture, and with such duty imposed upon him, the State laws of quarantine that affect interstate commerce and thus Federal law cannot stand together. The relief sought to protect the different States, in so far as it depends on the regulation of interstate commerce, must be obtained through application to the Secretary of Agriculture.

In the relation of the States to the regulation of interstate commerce by Congress there are two fields. There is one in which the State cannot interfere at all, even in the silence of Congress. In the other, and this is the one in which the legitimate exercise of the State's police power brings it into contact with interstate commerce so as to affect that commerce, the State may exercise its police power until Congress has by affirmative legislation occupied the field by regulating interstate commerce and so necessarily has excluded State action.

There is a field in which the local interests of States touch so closely upon interstate commerce that in the silence of Congress on the subject, the States may exercise their police powers, and quarantine as in the case before us, [is] in that field. But when Congress has acted and occupied the field, as it has here, the power of the States to act is prevented or suspended.

It follows that pending the existing legislation of Congress as to quarantine of diseased trees and plants in interstate commerce, the statute of Washington on the subject cannot be given application. It is suggested that the States may act in the absence of any action by the Secretary of Agriculture; that it is left to him to allow the States to quarantine, and that if he does not act there is no invalidity in the State action. Such construction as that cannot be given to the Federal statute. The obligation to act without respect to the States is put directly upon the Secretary of Agriculture whenever quarantine, in his judgment, is necessary.

Continued on page 139

Recent Government Publications of General Interest

The following publications issued by various departments of the Government may be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C.

AGRICULTURE

The Agricultural Outlook for 1926. (Department of Agriculture. Miscellaneous Circular No. 65). Price, 5 cents.

Deterioration of Commercially Packed Chlorinated Lime—by C. C. McDonnell, and Leslie Hart. (Department of Agriculture Bulletin No. 1389). Price, 5 cents. Purpose of investigation, outline of investigation, results of investigation, discussion of results, with summary, and literature cited.

Electroculture—by Lyman J. Briggs, and others. (Department of Agriculture Bulletin No. 1379). Price, 10 cents. Normal electrical state of the atmosphere, electrical field employed in electrocultural experiments, review of other investigations in electroculture, with literature cited.

Garden Irises—by B. Y. Morrison. (Department of Agriculture Farmers' Bulletin No. 1406). Price, 10 cents. Distribution, survey of botanical types, garden uses, landscape uses, propagation, irises at flower shows, diseases and insect pests.

Relative Susceptibility of Spring-Wheat Varieties to Stem Rust—by J. Allen Clark and others. (Department of Agriculture Circular No. 365). Price, 5 cents. Covers importance of rust resistance, scope of the experiments, results obtained, resistant varieties, description of varieties, with summary.

Wheat and Rye Statistics, Year Ended December 31, 1924, with Comparable Data for Earlier Years. (Department of Agriculture. Statistical Bulletin No. 12). Price, 15 cents. Covers wheat, flour, and rye.

COAL

Analyses of Missouri Coals—by W. T. Thom, Jr., and others. (Mines Technical Paper No. 366). Price, 10 cents. Covers topography and geology of the coal areas, mining methods, description of samples, and analyses of delivered coal, with illustration.

Explosion Hazards From the Use of Pulverized Coal at Industrial Plants—by L. D. Tracy. (Mines Bureau Bulletin No. 242). Price, 25 cents. Covers explosibility of pulverized coal, fire hazards of partly consumed coal dust, operating hazards, plant cleanliness, with summary operating regulations, publications of powdered coal, and index.

COLD-STORAGE

Ice-Making and Cold-Storage Plants in Continental Europe. (Department of Commerce. Trade Information Bulletin No. 388). Price, 10 cents.

EDUCATION

Biennial Survey of Education, 1920-1922. Price, $1.00. Statistical survey of education, 1921-22, statistics of State school systems, 1921-22, statistics of teachers colleges and normal schools, 1921-22, schools for the deaf, blind, and feeble-minded and subnormal children, 1922, etc., with index.

Statistics of Public High Schools, 1923-1924. (Education Bureau Bulletin, 1925, No. 40). Price, 5 cents. Covers enrollment, military drill, teachers, size of high school, graduates, type of high school, survivals, and statistical tables.

Review of Educational Legislation, 1923-1924—by William R. Hood. (Education Bureau Bulletin No. 35, 1925). Price, 5 cents. Covers new school codes, educational surveys, State departments of education, county school organization, teachers, school attendance, physically and mentally handicapped children, etc.

Status of the High School Principal—by Dan Harrison Eikenberry. (Education Bureau Bulletin No. 24, 1925). Price, 15 cents. Academic and professional training of the high-school principal, educational experience of the high-school principal, requirements, local status, and salary, etc., with appendixes, bibliography, and index.

The Effectiveness of Extension in Reaching Rural People, A Study of 3,954 Farms in Iowa, New York, Colorado, and California, 1923-24—by M. C. Wilson. (Department of Agriculture Bulletin No. 1384). Price, 5 cents. Purpose and scope of study, farms and homes reached by extension, boys' and girls' club work, and attitude toward extension, etc., with summary.

ETCHING REAGENTS

Metallographic Etching Reagents: 3, For Alloy Steels—by Edward C. Groesbeck. (Standards Bureau, Scientific Paper No. 518). Price, 25 cents. Equilibrium diagrams of binary and ternary systems in alloy steels, nature of constituents present in alloy steels and ferro-alloys, materials and methods, experiments, results, with summary and conclusions, with selected bibliography.

FEDERAL HIGHWAY CONSTRUCTION

Federal Legislation Providing for Federal Aid in Highway Construction, the Construction of National Forest Roads and Trails, and the Distribution of Surplus War Materials, Rules and Regulations of the Secretary of Agriculture for Carrying out the Federal Highway Act, and Amendments Thereto, Rules and Regulations for Administering Forests Roads and Trails. (Agriculture Department, Miscellaneous Circular No. 60). Price, 5 cents.

FOREIGN TRADE

Australia, a Survey of its Resources and Foreign Trade—by Emmett A. Chapman. (Department of Commerce. Trade Information Bulletin No. 390). Price, 10 cents. Covers physiography and topography, population, early development, political construction, chief trading centers, natural resources, minerals, agriculture, pastoral industry, cost of living, labor and wages, finance, banking, and foreign trade, etc.

Trends in Japan's Trade—by Halleck A. Butts. (Department of Commerce. Trade Information Bulletin No. 389). Price, 10 cents. Covers trade changes, export trade, import trade, imports and exports of foodstuffs, direction of trade, and export commodities and markets, etc.

GAS RESEARCH

Relations Between the Temperatures, Pressures, and Densities of Gases. (Bureau of Standards Circular No. 279). Price, 25 cents. Covers calculations involving the relations between the temperatures, pressures, volumes, and weights of gases, equations of state, supplementary tables, and bibliography.

INTERSTATE COMMERCE COMMISSION

Interstate Commerce Commission Reports, Vol. 94, Decisions of the Interstate Commerce Commission of the United States, (Finance Reports), October, 1924, to April, 1925. Price, $2.25. Covers members of the commission, table of cases cited, opinions of the commission, index digest.

LABOR

Child Labor in Representative Tobacco-Growing Areas—by Harriet A. Byrne. (Children's Bureau Publication No. 155). Price, 10 cents. Kentucky, South Carolina and Virginia, the Connecticut Valley, with summary and illustrations.

Women in the Fruit-Growing and Canning Industries in the State of Washington. (Women's Bureau Bulletin No. 47). Price, 40 cents. Study of wages, hours and conditions, personal and family history of the women workers, migrants, housing, labor turnover in canneries and warehouses, and industrial accidents and diseases, with appendixes.

LIVESTOCK

Normal Growth of Range Cattle—by A. B. Clawson. (Department of Agriculture Bulletin No. 1394). Price, 5 cents. Covers location of range, origin and management of the cattle, individual cattle weights, 1916 to 1924, average yearly gains, variations in gains, and summary.

PATENTS

Index of Patents, Issued from the United States Patent Office, 1925. Price, $1.00. Decisions printed in the Official Gazette in 1925, alphabetical list of patentees for the year 1925, and classified list of trademarks registered, etc.

PEAT

Possibilities for the Commercial Utilization of Peat—by W. W. Odell, and O. P. Hood. (Mines Bureau Bulletin No. 253). Price, 35 cents. Laboratory experiments with Minnesota peat, carbonization of peat and recovery of by-product, water gas, suggestions for utilizing peat resources of the United States, etc., with summary and conclusions, index, and illustrations.

POULTRY

The Poultry Industry—by M. A. Jull, and others. (Department of Agriculture. Separate from Yearbook 1924, No. 917). Price, 20 cents. Uses of poultry products, historical development of industry, the chicken, turkey, goose, duck, guinea-fowl, pigeon and game-poultry industry, poultry diseases and sanitation, etc.

STANDARDIZATION

Development of a Standard Bending Test for Rope Yarns—by Charles W. Schoffstall, and Robert C. Boyden. (Standards Bureau

Continued on page 139

Pro—continued

HON FRED A. BRITTEN—continued from p 121

weights and measures in exports which are not understood and do not fit in with the industrial economics of the Latin Americans."

Dr. Charles H. Mayo, of Mayo Brothers, physicians, says: "The metric system is now used generally by the medical profession and should be standardized for general use.

"The probability is that there is not a man or woman living in the United States who can, off hand, and without a book, tell our various weights and measures. That is rather a broad statement. I do not think the head of the Bureau of Standards can do it. We have various weights in different States. The barrel differs in one State from the barrel in an adjoining State, and the same is true of the bushel and peck."

Samuel Vauclain, President of the Baldwin Locomotive Works, says: "We could change to the metric system, or we could use both systems, without incurring any appreciable expenses at the time. My opinion, however, is that were we all using the metric system, it would be much more convenient to the workmen, and our errors would be appreciably less than they are at present." Why would our errors be appreciably less than they are at present? Because the decimal system provides the simplest means for calculation.

We did not adopt the British money system after 1776. We went into the decimal system. And sometime thereafter an act of Congress authorized the metric system in the United States, but it was never put into actual operation. I think right now it is the only legal system of weights and measures in the United States. We inherited the other from Great Britain and allowed it to grow upon us, and now we do not want to change it. There is always opposition to any movement of this kind, or any kind that will entail a little expense in one direction or another.

This bill is not going to affect the farmer or the real estate man. It gives the manufacturer ten years in which to make such changes in his equipment as may be necessary. His dies wear out in ten years. During that time he can change from our present system into the decimal system, and the length of time is very largely dependent upon the character of the institution.

There is no question but that even the opposition to this bill will agree that if the metric system could be employed and could be made effective without cost to anyone, it would be a good thing. The opposition comes from those who would have to expend some money by reason of the change. Of course, every change like this will cost someone some money, but in the end it will pay them many times more than the slight cost it entailed.

ARTHUR E. KENNELLY—continued from p. 133

tioned whether such a farcical, hypothetical medley would be more illogical, incoherent or cumbersome than that we now use.

We have the history of almost all the continental nations of Europe, and of America south of U. S. A., to guide us in estimating the small degree of difficulty to be expected in effecting the advance to metric units.

So far as can be ascertained from the history of transi-

Continued on next page

Con—continued

HON. JOHN M. WOLVERTON—continued from p. 137

is stupendous, and the enactment of this drastic legislation in my opinion, would upset the industrial situation and would create chaos in our industrial world.

I live in a lumber manufacturing center. What would the adoption of this system mean to the lumber industry of my little city? All the machinery used in the production of lumber is manufactured on a scale of inches and feet, and the standard lengths, widths and thickness of all kinds of lumber are expressed in inches and feet. If the metric system were made compulsory in lumber transactions it would be necessary for inch boards to be manufactured 25.4 millimeters thick, and prices quoted in board feet would have to be quoted in cubic meters. This change would necessitate the installation of a new plant and new machinery at great expense. This situation would apply to all of the lumber manufacturing plants of the country.

If the metric system were adopted all of the tools, taps, dies and gages which correspond to the inch in all of the manufacturing plants of this country would have to be changed at great expense. Great loss would occur because engineers, draftsmen, mechanics, pattern makers and salesmen would have to be taught the new system. Many errors expensive to the manufacturer and consumer would occur. It is estimated that 99% of the people of this country would be affected by this change. In the hearings before the Committee on Coinage, Weights and Measures on this bill the evidence was to the effect that the compulsory enactment of this legislation would cost the people of this country more than it cost this country to finance the World War. One witness testifying as a representative of the automobile industry estimated the cost of the change at $10,000,000,000.

English speaking people, in my opinion, should use English methods. It seems to me that we might just as well be compelled to adopt the French, Italian, Spanish, or some other language as to adopt their system of weights and measures. It is estimated that it would probably take at least one hundred years to educate the English speaking people to use this European system.

But why this change in our system of weights and measures? There is but little real demand for it. Our English system is satisfactory to the workmen, the manufacturers and the business men of this country. There may be a few druggists, chemists and other scientific people who prefer the decimal or the metric system. They now have the privilege of using that system in their business if they so desire.

The vast majority of the people of the United States are opposed to the metric system and do not want this system imposed on them by mandatory legislation, and as a member of the Committee on Coinage, Weights and Measures, before which this bill is now pending, I am opposed to favorably recommending the bill for consideration by the House.

PIERCE ARROW MOTOR CAR COMPANY—cont'd from p. 133

to the high grade machinist and tool maker, who has about a thousand dollars invested in very accurate measuring tools.

If this law is passed, it would mean that the Pierce-Arrow Motor Car Company and all other automobile manufacturers in this country would have to replace with

Continued on next page

Pro—continued

ARTHUR E. KENNELLY—continued

tion to the metric system abroad, the transition in the British Commonwealths and in the United States of America should not require any machine, implement, tool or piece of apparatus to be discarded or abandoned. The adjustment would not be expensive in new machinery. Any trouble would be intellectual rather than material. New price-lists would have to be prepared in terms of meter-liter-gram. In stores where sales had previously been made by the yard, they would be made by the meter, which is a measure about 10% longer. In stores where sales had been by the pound avoirdupois, sales would be by the 500 grams, which is about 10% more than one pound. This would involve adjustments of foot-rules, yard-measures and sets of scale-weights, together with revision of price-lists. If the transition occurred suddenly, there would be confusion; but if it took place gradually, it would not be serious.

It is the experience of the average American in a country where the metric units and coinage have both to be acquired, that complete familiarity is attained in less than 2 weeks.—Extracts, see 3, p. 143.

NATIONAL WHOLESALE GROCERS' ASSOCIATION OF THE UNITED STATES

Statement by Arthur P. Williams

I REPRESENT the National Wholesale Grocers' Association of the United States, and the New York State Wholesale Grocers' Association. The National Wholesale Grocers have a membership of 868 of the largest firms and corporations in the grocery business in the United States. We employ approximately 275,000 people and do a business over $3,000,000,000.

For 10 consecutive years we have passed a unanimous resolution in favor of the immediate adoption of the metric system.

I was personally converted to this system in South America when I went there in 1912 to sell my goods. I went there to sell American canned goods. I found there in 1912 that our competitors were Germany, Belgium, Italy, and France. They were selling canned goods in South America in the largest volume. They were delivering units of weights and measure that were understood by the consumers of South America, the common people, in packages of very simple denominations, 250 grams, 500 grams, 1 kilo, or 1,000 grams—commonly called 1 kilo, half kilo, and quarter kilo. They were packed and shipped in units of 100. There would be 50 tins in a case, 100 tins, or 200 tins.

Immediately on returning to New York I ordered the double marking of my own labels, putting the metric system on the labels, so that at least I would go into that market with an intelligent label for the consumer. That I have recommended to the trade in the grocery business. It is being done by a large number of manufacturers, with the double idea of educating the people to the metric system of markings and also for the foreign trade.

When the metric system is adopted, and I sincerely trust it will be, the unit will probably be 500 grams. The No. 2 can of Oregon pears will be made into a 500-gram can, probably. The size smaller, which is now the individual can of Oregon fruit, will be 250 grams, a quarter kilo can. And the common California 2½ fruit will be 1 kilo. That

Continued on page 142

Con—continued

PIERCE ARROW MOTOR CAR COMPANY—continued

metric graduations all machinery and tools that are now graduated with the English system. They would have to retain this old discarded equipment, as they would be required to furnish parts for replacements in service—the cost of which would be tremendous.

During the past sixty years, it has been legal to use the metric measurements in this country. If there were any benefit to be derived from this system, it would seem that the American manufacturers, who are the most progressive in the world, would adopt it.

We believe that all English speaking countries should retain the English system of measure. In so far as the United States of America is concerned, you will undoubtedly agree that we have done very well with the system that we use today in comparison with any other country that uses the metric system.—Extracts, see 1, p. 143.

NATIONAL ASSOCIATION OF RETAIL GROCERS

Statement by George W. Amison

AT the end of ten years we might lock the doors at night putting all scales with their pounds and ounces out of the way; then open the next morning selling by meter, liter and gram. John Jones on this corner can commence using the metric system any time during the ten years with Smith on the other corner selling as usual by pounds and ounces. How long could this continue?

Let us look at this from an advertising standpoint. Grocers are advertising through the newspapers and other means more and more every year. Two stores in different parts of a city or even near each other may have opposite views as to the opportune time to commence using the system (if the law was passed). One says now, the other some time in the future.

Any night in the newspapers would be seen two advertisements, one advertising "sirloin steak 50c per 500 grams" or "butter 55c per 500 grams." The other advertisement would read "sirloin steak 45c per pound," or "butter 50c per pound." Which would be selling the cheaper? One would advertise chickens at 45c per 500 grams and if it weighs 5¼ lbs., avoirdupois, it would be 2,540 grams. How will this strike the consumer?

Think of the confusion, the misunderstanding, the impatience and disgust in the mind of the customer!

Also, the grocer must change his methods of keeping accounts. He must change his methods in purchasing. He must think in terms of a new language. There are so many angles to this as we consider it from day to day that each time it looms up as more difficult of accomplishment.

Can this be done? Yes, in theory, but not in fact; it's the workaday life that tells the story. Don't you think the grocer has enough to contend with without adding this to his other burdens. I wish the theorist would try the practical side of things once in a while.

We are living in the most enlightened country in the world; with the best informed men, best methods of doing business, best in efficiency, where cost methods and mass production are scrutinized to the limit. This law has been on our statute books for sixty years—since 1866 as an optional one—and if this method had within itself, as

Continued on page 142

The Supreme Court of the United States—continued from p. 135

When he does not act, it must be presumed that it is not necessary. With the Federal law in force, State action is illegal and unwarranted.

The decree of the Supreme Court of Washington is reversed. Mr. Justice McReynolds and Mr. Justice Sutherland, dissenting.

Baggage Tariff Liability of Intrastate Carrier

The Case—No. 203. Missouri Pacific Railroad Co., Petitioner, vs. Byrd J. Boone. On Writ of Certiorari to St. Louis Court of Appeals of Missouri.

The Decision—The judgment of the lower court was affirmed.

The opinion of the Court was delivered by Mr. Justice Brandeis, March 22, 1926, and is in part as follows:

In 1922, Byrd J. Boone, a passenger on an intrastate journey in Missouri over the Missouri Pacific Railroad, checked a trunk which she took with her. It arrived safely at its destination but was not delivered to her because a thief obtained possession through the device of changing checks. She brought this suit against the carrier in a court of the State; and claimed that, under § 9941 of the Revised Statutes of Missouri, 1919, she was entitled to the full value. This law, first enacted in 1855 had never been suspended or repealed by any law of the State. The defendant relied upon a baggage tariff which limited liability to $100 unless a greater value was declared and extra payment made. This tariff, applicable to both intrastate and interstate traffic, had been duly filed by the Director General of Railroads pursuant to the Federal Control Act, March 21, 1918, c. 25 § 10, 40 Stat. 451, 456, and was in force on the termination of Federal control, February 29, 1920. The defendant contended that, by virtue of § 208 (a) of Transportation Act, 1920, February 28, 1920, c. 91, 41 Stat. 456, 464, this limitation had remained in force as applied to intrastate commerce, because the provision for unlimited liability contained in § 9941 of the Missouri Revised Statutes had not been re-enacted after the termination of Federal control.

The trial court entered judgment for $1,000 and interest.

The judgment was affirmed by the St. Louis Court of Appeals. 263 S. W. 495. The court held that, under the law of Missouri, misdelivery of the trunk was a conversion which rendered the carrier liable for its full value; and that the State law governed because the journey was intrastate. This Court granted a writ of certiorari. 266 U. S. 600. Under the Federal law misdelivery is not deemed a conversion depriving a carrier of the benefit of the provision limiting liability. The sole question for decision is the construction and effect to be given § 208 (a).

The provision in the baggage tariff limiting liability is within the purview of that section. There was no legislation by the State on the subject after the termination of Federal control. The State had confessedly power to restore the full statutory liability as applied to intrastate commerce unless the Interstate Commerce Commission should, for the purpose of preventing discrimination against interstate commerce, issue an order under Transportation Act, 1920, to the contrary. The precise question is whether the State provision, which had been suspended by the filing of the tariffs of the Director General, became operative on September 1, 1920, without re-enactment, or whether affirmative action by the State after February 29, 1920, was necessary to restore the full liability theretofore created by its statute and which it had not repealed. The analogy of State insolvent laws suspended by enactment of a bankruptcy act and again becoming operative upon its repeal, was relied upon.

In order to remove doubts as to what tariffs were to be applicable after the termination of Federal control, Congress declared that the existing tariffs, largely initiated by the Director General, should be deemed operative, except so far as changed thereafter—that is, after February 29, 1920—pursuant to law. Such modification of intrastate tariffs might result from action of the carriers taken on their own initiative. It might result from orders of the Interstate Commerce Commission. It might result from the making either of new State laws or of new orders of a State commission acting under old laws still in force and again becoming operative. Or such modification might result from the mere cessation of the suspension, which had been effected through Federal control of statutes or orders theretofore in force and still unaffected by any action of the authority which made them. In any of these cases, the change would be effected "thereafter;"—that is, after the termination of Federal control. The statute of Missouri enforced by its courts was in effect in 1922. The judgment is affirmed.

Recent Government Publications of General Interest—continued from p. 136

Technologic Paper No. 300). Price, 10 cents. Testing conditions, procedure, with summary and conclusions.

United States Government Master Specification No. 384, for Stitches, Seams, and Stitching. (Standards Bureau Circular No. 283). Price, 20 cents. Definition of terms used.

United States Government Master Specification No. 379, for Ink, Drawing, Colored Waterproof. (Bureau of Standards Circular No. 301). Price, 5 cents. General specifications, types, material, general requirements, detail requirements, method of inspection and tests, packing and marking, with notes.

United States Government Master Specification No. 375, for Shellac, Flake Orange. (Bureau of Standards Circular No. 302). Price, 5 cents. General specifications, types, material, general requirements, detail requirements, methods of sampling and testing, packing and marking, with notes.

Sand-Lime Brick. (Bureau of Standards. Simplified Practice Recommendation No. 38). Price, 5 cents. Covers history of the project, summary of general conference, and personnel of general conference.

STONE

Permeability of Stone—by D. W. Kessler. (Standards Bureau Technologic Paper No. 305). Price, 10 cents. Covers description of apparatus, preparation of specimens, procedure, results of tests, description of materials and individual tests, etc., with conclusions.

SUGAR BEET

Costs of Producing Sugar Beets: part III, Nebraska, Report on the Farmers' Costs of Producing Sugar Beets in Nebraska, 1921, 1922, and 1923. Department of Agriculture. Price, 15 cents.

Costs of Producing Sugar Beets: part IV, Colorado, Report on the Farmers' Costs of Producing Sugar Beets in Colorado, 1921, 1922, and 1923. Department of Agriculture. Price, 20 cents.

TANNING MATERIALS

Investigation of Synthetic Tanning Materials—by Edward Wolesensky. (Standards Bureau Technologic Paper No. 302). Price, 15 cents. Status of commercial tanning materials, historical, experiments and results, with summary conclusions, and bibliography.

U. S. BUREAU OF STANDARDS

Research Associates at the Bureau of Standards. (Bureau of Standards Circular No. 296). Price, 10 cents. Covers the associate plan, purpose, research facilities, typical cases, some published research results, with list of associates and organizations, and actions by Congress.

U. S. NAVY DIRECTORY

Navy Directory, January 1, 1926. Price, 25 cents. Officers of the United States Navy and Marine Corps, also including officers of the U. S. Naval reserve force (active), Marine Corps reserve (active) and foreign officers serving with the Navy.

U. S. PUBLIC HEALTH SERVICE

Annual Report of the Surgeon General of the Public Health Service of the United States, for the Fiscal Year, 1925. Price, $1.00. Division of scientific research, division of domestic (interstate) quarantine, division of foreign and insular quarantine and immigration, etc. with recommendations and appendix.

Congress Day by Day—continued from p. 114

Monday, March 15, 1926

SENATE:

Mr. Walsh, Mont., D., spoke at length on the trial of Senator Burton K. Wheeler, Mont., D., and presented a resolution (S. Res. 171) that the Attorney General transmit an itemized statement of all expenditures incurred in connection with investigations by the Department of Justice, and further that the Department of Justice advise the Senate whether the Department of Justice intends to present to a grand jury the testimony of certain government witnesses at the trial with a view to an indictment for perjury.

Passed with amendments the bill (S. 1912, Means, Colo., R.) to provide a method for the settlement of claims against the government of the United States in sums not exceeding $3,000.

Passed a bill (S. 2752, Greene, Vt., R.) authorizing $200,000 for the purchase of 6,007 acres of land as an artillery range at Fort Ethan Allen, Vt.

Passed the bill (H. R. 7820) Curry, Calif., R., providing for a bipartisan canvassing board to certify election of delegates to the House from Alaska.

Passed the bill (S. 2769, Willis, O., R.) extending the provisions of the national bank act to the Virgin Islands.

Resumed consideration of the bill (H. R. 9341) making appropriations for the Executive office and independent offices, etc.

HOUSE:

Passed, by a vote of 218 to 123, the radio control bill (H. R. 9971, Me., R.). In the Senate the bill was referred to the Committee on Interstate Commerce.

Passed a number of bills on the Consent Calendar.

Passed the bill (H. R. 10200, Porter, Pa., R.) for the acquisition of buildings and grounds in foreign countries for the use of the Government of the United States.

Adjourned.

Tuesday, March 16, 1926

SENATE:

Resumed consideration of the Gooding bill (S. 575) to amend the long and short haul clause of the Interstate Commerce Act. Mr. Phipps, Colo., R., and Mr. Bruce, Md., D., spoke in opposition to the bill. Mr. Pittman, Nev., D., supported the bill.

Adopted a unanimous consent agreement to vote on the Gooding bill (S. 575) to amend the long and short haul clause of the Interstate Commerce Act not later than 3 o'clock on March 24, 1926.

Resumed consideration of the bill (H. R. 9341) making appropriations for the Executive office and independent offices, etc.

An executive session was held.

Recess was taken.

HOUSE:

Resumed consideration of the District of Columbia appropriation bill (H. R. 10198).

Mr. Gorman, Ill., R., explained the provisions of his bill (H. R. 6516) to provide a bureau of civil, commercial, and strategic aeronautics.

Mr. Collins, Miss., D., discussed the fiscal relations of the District of Columbia and the Federal Government.

Mr. Gibson, Vt., R., replied to remarks by Mr. Jones, Tex., D., relative to General Wood's administration in the Philippines.

Adjourned.

Wednesday, March 17, 1926

SENATE:

Mr. Wheeler, Mont., D., spoke in support of the Gooding bill (S. 575) to amend the long and short haul clause of the Interstate Commerce Act.

Resumed consideration of the bill (H. R. 6707) making appropriations for the Department of the Interior.

An executive session was held.

The Senate gave its advice and consent to the ratification of the following treaties between the United States and Great Britain, signed at London, February 10, 1925: Treaty in regard to the rights of the respective Governments in that part of the former German protectorate of the Cameroons over which a mandate was conferred upon Great Britain; Treaty in regard to the rights of the respective Governments in that part of the former German colony of East Africa over which a mandate was conferred upon Great Britain; and a Treaty in regard to the rights of the respective Governments in that part of the former German protectorate of Togoland over which a mandate was conferred upon Great Britain.

Recess was taken.

HOUSE:

Mr. O'Connell, R. I., D., spoke on the contributions of the Irish race in the United States.

Resumed consideration of the District of Columbia appropriation bill (H. R. 10198).

Adjourned.

Thursday, March 18, 1926

SENATE:

Passed the bill (S. 3377) to amend Section 5219 of the Revised Statutes to permit State taxation of National banks.

Mr. Brookhart, Ia., R., spoke on freight rate discriminations in connection with the Gooding bill (S. 575) to amend the long and short haul clause of the Interstate Commerce Act.

Mr. Reed, Mo., D., spoke on the World Court and reviewed the action of the Senate in passing the World Court resolution.

Passed the bill (H. R. 6707) making appropriations for the Department of the Interior.

An executive session was held.

Recess was taken.

HOUSE:

Passed the District of Columbia appropriation bill (H. R. 10198).

Began consideration of the bill (H. R. 10425) making appropriations for the legislative branch of the Government.

Adjourned.

Friday, March 19, 1926

SENATE:

Adjournment was taken after the adoption of a resolution expressing regret at the death of John C. Coolidge, father of the President.

HOUSE:

Adopted a resolution extending the sympathy of the House to the President on the death of his father.

An hour was devoted to speeches on the life and services of the late William Jennings Bryan.

Resumed consideration of the bill (H. R. 10425) making appropriations for the legislative branch of the Government.

Mr. Tincher, Kans., R., criticized the agricultural relief bill drafted by the Des Moines farm delegation.

Mr. King, Ill., R., criticized the administration of General Wood in the Philippines.

Adjourned until Monday, March 22.

Saturday, March 20, 1926

SENATE:

A resolution (S. Res. 180) that the Committee on Manufactures be authorized to investigate conditions in connection with the textile strike at Passaic, N. J., which was submitted by Mr. La Follette, Wis., R., precipitated general discussion of the textile strike situation.

Resumed consideration of the bill (H. R. 9341) making appropriations for the Executive Office and independent offices, etc.

Mr. Norris, Nebr., R., criticized the work of the Federal Trade Commission.

Recess was taken.

HOUSE:

Not in session.

Monday, March 22, 1926

SENATE:

Mr. Harrison, Miss., D., discussed the conduct of foreign affairs in connection with news dispatches based upon an interview given by Mr. Houghton, Ambassador at London. A general discussion relative to the Locarno conference ensued.

Passed the bill (H. R. 9341) making appropriations for the Executive Office and independent offices, etc.

Resumed consideration of the Gooding bill (S. 575) to amend the long and short haul clause of the Interstate Commerce Act. Mr. Ashurst, Ariz., D., and Mr. Nye, N. D., R., and Mr. Oddie, Nev., R., spoke in favor of the bill.

Passed a number of bills authorizing construction of bridges.

An executive session was held.

Recess was taken.

HOUSE:

Considered bills relating to the District of Columbia.

Mr. Blanton, Tex., D., discussed the guardianship of insane war veterans committed to St. Elizabeths.

Passed the bill (H. R. 7255, Dickstein, N. Y., D.) to regulate the sale of Kosher meat in the District of Columbia.

Debated the bill (H. R. 5823, Lineberger, Calif., R.) to amend the District Code of Law to permit women to serve on juries in the District. By a vote of 189 to 122, the House refused to strike out the enacting clause of the bill and it was recommitted to the Committee of the Whole House.

Resumed consideration of the bill (H. R. 10425) making appropriation for the legislative branch of the Government.

Adjourned.

Tuesday, March 23, 1926

SENATE:

Resumed consideration of the Gooding bill (S. 575) to amend the long and short haul clause of the Interstate Commerce Act. Mr. Deneen, Ill., R., spoke against the bill. Mr. Gooding, Ida., R., replied.

Mr. Bruce, Md., D., replied to a speech made by Mr. McKellar, Tenn., D., on prohibition enforcement.

An executive session was held.

Recess was taken.

HOUSE:

Passed the bill (S. 3377) to amend section 5219 of the Revised Statutes to permit State taxation of National banks.

Resumed consideration of the bill (H. R. 10425) making appropriations for the legislative branch of the Government.

Mr. Robsion, Ky., R., discussed the Lake Cargo Rate cases pending before the Interstate Commerce Commission.

Mr. Kvale, Minn., Independent, and Mr. Chalmers, O., R., spoke in favor of the Great Lakes-St. Lawrence waterway project.

Mr. Lozier, Mo., D., criticized the terms of the foreign debt settlements recently passed by the House.

Adjourned.

Wednesday, March 24, 1926

SENATE:

Rejected, by a vote of 46 to 33, the Gooding bill (S. 575) to amend the long and short haul clause of the Interstate Commerce Act.

The bill (S. 1136) to authorize the settlement of the indebtedness of Italy to the United States was made the unfinished business before the Senate.

Began consideration of the bill (H. R. 9795) making appropriations for the Departments of State, Justice, Commerce, and Labor.

Mr. Bruce, Md., D., spoke on prohibition.

An executive session was held.

Adjourned.

HOUSE:

Resumed consideration of the bill (H. R. 10425) making appropriations for the legislative branch of the Government.

Mr. La Guardia, N. Y., Socialist, Mr. O'Connor, N. Y., D., and Mr. Celler, N. Y., D., spoke on prohibition enforcement.

Mr. Hare, S. C., D., spoke on his bill (H. R. 7288) providing for an annual purchase by the War Department of not less than 100,000 bales of cotton, etc., in order to prevent a surplus of cotton in foreign trade.

Mr. Guevara, Resident Commissioner from the Philippines, spoke on Philippine independence.

Mr. Davila, Resident Commissioner from Porto Rico, discussed the relationship between the United States and Porto Rico.

Mr. Brand, O., R., urged consideration of farm relief legislation.

Adjourned.

Thursday, March 25, 1926

SENATE:

Mr. Smoot, Utah, R., Chairman of the Committee on Finance, reported favorably the bill (H. R. 6773) to authorize the settlement of the Italian debt to the United States. The House bill was substituted for the Senate bill (S. 1136) as the unfinished business of the Senate. Mr. Smoot explained the terms of the settlement. Mr. Johnson, Calif., R., opposed the proposed settlement.

Adopted a resolution (S. Res. 171, Walsh, Mont., D.) asking the Department of Justice for an accounting of money spent in the two prosecutions of Senator Burton K. Wheeler, Mont., D.

Resumed consideration of the bill (H. R. 9795) making appropriations for the Departments of State, Justice, Commerce, and Labor.

An executive session was held.

Recess was taken.

HOUSE:

Resumed consideration of the bill (H. R. 10425) making appropriation for the legislative branch of the Government.

Mr. McLaughlin, Nebr., R., discussed his bill (H. R. 4497) to repeal the Pullman surcharge.

Mr. Schafer, Wis., R., urged an investigation of the administration of the office of the Alien Property Custodian.

Mr. Rankin, Miss., D., supported the prohibition amendment. Mr. Oliver, N. Y., D., replied.

Mr. Fort, N. J., R., discussed agricultural relief measures and outlined a plan for price stabilization.

The Committee on the Judiciary reported five articles of impeachment against Federal Judge George W. English, eastern district of Illinois. Report No. 653.

Adjourned.

Friday, March 26, 1926

SENATE:

Mr. Gooding, Ida., R., introduced a modified version of his bill to amend the long and short haul clause of the Interstate Commerce Act. (S. 3720.)

Advice and consent of the Senate was given to the ratification of the following treaties: Treaty of friendship, commerce and consular rights between the United States and Hungary, signed at Washington, June 24, 1925; Treaty of friendship, commerce and consular rights between the United States and Esthonia, signed at Washington, December 23, 1925.

Confirmed the nomination of Thomas F. Woodlock to be a Commissioner on the Interstate Commerce Commission.

Adjourned.

HOUSE:

Passed an omnibus pension bill (H. R. 10314) granting pensions and increases of pensions to veterans of the Civil War and to dependent children and widows of veterans of the Civil War.

Minority views opposing the impeachment of Federal Judge George W. English were reported from the Committee on the Judiciary.

Passed an omnibus pension bill (H. R. 9666) granting pensions and increases in pensions to certain soldiers and sailors of the Regular Army, and certain soldiers and sailors of wars other than the Civil War, etc.

Resumed consideration of the bill (H. R. 10425) making appropriations for the legislative branch of the Government.

Mr. Linthicum, Md., D., spoke on prohibition enforcement.

Mr. Nelson, Mo., D., discussed farm relief legislation and the tariff.

Mr. Whittington, Miss., D., spoke on waterway development.

Adjourned.

Saturday, March 27, 1926

SENATE:

Mr. McKinley, Ill., spoke on pending farm relief legislation. A general discussion ensued.

Passed the bill (H. R. 9795) making appropriations for the Departments of State, Justice, Commerce, and Labor.

An executive session was held.

Recess was taken.

HOUSE:

Adopted a resolution providing for a special rule for sending the independent appropriation bill (H. R. 9341) to conference. The item under consideration was a Senate amend-

ment to the bill to decrease from $18,600,000 to $13,900,000 an appropriation for the Shipping Board.

Considered bills on the Private Calendar.

Adjourned.

Monday, March 29, 1926

SENATE:

Resumed consideration of the bill (H. R. 6773) to authorize the settlement of the indebtedness of Italy to the United States. Mr. Robinson, Ark., D., and Mr. Reed, Mo., D., criticized the terms of the settlement.

Mr. Norris, Nebr., R., chairman of the Committee on Agriculture and Forestry, discussed agricultural relief legislation.

An executive session was held.

Recess was taken.

HOUSE:

Considered bills on the Consent Calendar. Passed a bill (H. R. 3821, Cramton, Mich., R.) to place under the civil service act the personnel of the Treasury Department authorized by section 38 of the national prohibition act.

Adjourned.

Tuesday, March 30, 1926

SENATE:

Mr. Howell, Nebr., R., discussed foreign debt settlements, and declared that the terms practically amounted to cancellation. Mr. Edge, N. J., R., and Mr. Reed, Pa., R., supported the Italian debt settlement.

Considered unobjected bills on the Calendar.

Considered the conference report on the bill (H. R. 8917) making appropriations for the War Department.

Passed a resolution (S. J. Res. 56) extending the time for automobile permits in the District for one year from March 31, 1926.

An executive session was held.

Recess was taken.

HOUSE:

Began consideration of impeachment charges against Federal Judge George W. English.

Adjourned.

Wednesday, March 31, 1926

SENATE:

Adopted a resolution (S. Con. Res. 4) authorizing $5,000 for the expenses for the Joint Committee on Muscle Shoals.

Resumed consideration of the bill (H. R. 6773) to authorize the settlement of the indebtedness of Italy to the United States. Mr. Copeland, N. Y., D., and Mr. Bingham, Conn., R., spoke in favor of the terms of the settlement. Mr. Harrison, Miss., D., opposed the settlement.

Mr. Sheppard, Tex., D., urged the continuance of the annual appropriation of $1,240,000 for the fiscal years of 1928 and 1929 under the Maternity and Infancy Act. Under the provisions of the act the period for which appropriations were authorized will end with the fiscal year June 30, 1927.

Considered unobjected bills on the Calendar.

An executive session was held.

Recess was taken.

HOUSE:

Continued debate on report from the Committee on the Judiciary recommending impeachment of Federal Judge George W. English.

Adjourned.

Pro—continued

National Wholesale Grocers' Association of the United States—Cont'd from p. 138

is all there is to it. With that you can make your gallon tin today, say, three kilos flat—3,000 grams, 3 kilos.

In other words, it will be economy to the canned goods packer in Oregon or anywhere else in the country. It will mean the elimination of thousands and thousands of sizes that we use today, such sizes, without going into all the detail, as the 6-ounce tin, the 6¼, the 7½, the 7¾; in the case of canned salmon, the 8-ounce tin, 9-ounce, 10-ounce, 11-ounce. It is not necessary to repeat them all—15½ and 16 ounces, and so on up to the eights and tens.

I believe that with the introduction of the metric system, when all those would be eliminated and we would get down to a standardized can and a standardized package, that the consumers of the United States would save millions of dollars. I do not believe the average woman knows what she gets when she buys a can that is marked 1 pound 4 ounces, 1 pound 5 ounces, 1 pound 7 ounces.

They tell me that when you change to the metric system something has got to be scrapped and it is going to be a terrific loss. That is the only argument I have ever heard against it. We buy a great deal of machinery. We buy machinery for packing, for filling bottles, for corking them, for labeling bottles. We buy machinery to pack these cases of canned goods. I buy this myself and I check the invoices and I know the cost. And I know that by the time we get a bill paid and the machine working nicely along comes an improvement, and it is so much better than the old one, that the old one in a short time has to be scrapped and thrown away, and we change to the new and improved machine. You might call it cost, but it gives greater efficiency and it is an economy. I therefore buy the new machine, discard the old one, and go ahead.—Extracts, see 4, p. 143.

Con—continued

National Association of Retail Grocers—continued from p. 138

proponents state it has, a short way to glory or perfection, where has the common sense of American business men been wandering?

First the grocer must educate himself and become thoroughly conversant with each unit of value as expressed in the metric system. He must think in terms of 500 grams, which make about 10 per cent more than one pound; meter, about 10 per cent longer than the yard; liter 5 per cent more than our present measure of pints, quarts and gallons. He has been all his life, and his fathers before him, thinking in pounds and ounces, in feet and yards. These things are a part of his life.

Not one man in a thousand knows anything about the metric system and he must teach his clerks to sell goods this way. There is also the education of the consumer.

Here is a country store. A customer wants a yard or a yard and a quarter of some product of the loom, and it must now be measured by the meter. He may say "I want a pound of this or a quart or a peck of this" and the storekeeper must of necessity explain the change. I can see the expression on his or her face. I can judge the language he or she would use. This is not fanciful or far-fetched; it is out of the book of life and we are all compelled to read this book. Let us look at this from the storekeeper's standpoint. There are over 1,000,000 who are using scales in the United States, and there are 354,000 grocers. An ordinary neighborhood market and grocery has at least three to four pairs of scales; one meat (computing), one side beam or even balance, one for teas and coffees, and one spring balance scale for his vegetables. He frequently has a large even balance meat scale to weigh his beef, etc., as it comes in.

Here, then, comes in the outlay for, say, new beams, new dials, new charts, and where would it stop? It would mean new scales and the cost of these new is anywhere from $100 to $300.—Extracts, see 1, p. 143.

English System—continued from p. 119

The standard Troy pound contains 5,760 grains and is identical with the Troy pound of Great Britain. Troy weight is used in weighing gold, silver, and jewels.

The carat (car.)* a weight of about 3.2 grains Troy, is used in weighing diamonds and other precious stones. The term carat is used also to express the fineness of gold, and means 1-24 part. For example, gold is said to be 18 carats fine when it contains 18 parts of pure gold and 6 parts of alloy or baser metal.

AVOIRDUPOIS WEIGHT

16 ounces (oz.)	=1 pound (lb.)
100 pounds (lbs.)	=1 hundredweight (cwt.)
20 hundredweight or 2,000 lbs.	=1 ton (t. or T.)

The Avoirdupois pound contains 7,000 grains Troy.
There are 7.3 Apothecary drams in an Avoirdupois ounce.
25 pounds are sometimes called a quarter.
The ton of 2,000 pounds is sometimes called the short ton.

LONG TON WEIGHT

16 ounces	=1 pound (lb.)
112 pounds (lbs.)	=1 hundredweight (cwt.)
20 cwt. or 2,240 lbs.	=1 ton (T. or t.)

APOTHECARIES WEIGHT

20 grains	=1 scruple (sc.)
3 scruples	=1 dram (dr.)
8 drams	=1 ounce (oz.)
12 ounces	=1 pound (lb.)

The pound, ounce, and grain of this weight are identical with those of Troy weight.

* See Bureau of Standards Circular No. 43, The Metric Carat, for a discussion of the metric carat and tables of the relations of the metric carat to the old carat of 205.3 miligrams in use in this country previous to July 1, 1913. The metric carat has been established as 200 milligrams, and is now universally accepted.

The White House—continued from p. 134

Mar. 24—Joint resolution (S. J. Res. 44) authorizing Federal Reserve Bank of New York to invest its funds for branch office at Buffalo, New York. Public Res. No. 9.

Mar. 25—Act (S. 3377) to amend section 5219 of Revised Statutes of United States rel. to taxing of national banking associations. Public Law No. 75.

Mar. 27—Act (H. R. 7979) granting to Yosemite Valley Railroad Co. right of way through certain public lands for relocation of part of its existing railroad. Public Law No. 76.

Division of Weights and Measures

continued from p. 139

Investigation of railroad track scales.

Calibration of test cars.

Investigation of mine scales.

Development of specifications and tolerances and methods of test for, and capacity rating of, master track, railroad track, grain hopper, and other heavy-capacity scales, and of testing machines.

Calibration of heavy weights.

Cooperation with railroads, weighing bureaus, etc., on heavy-capacity scale and weighing problems.

LIMIT GAUGES—D. R. MILLER

Scope

Determination of dimensions of master, inspection, and working gauges used in interchangeable manufacture.

Development and construction of apparatus for verifying gauges and measuring machine-parts not readily or commonly gauged.

Collection of data on stock sizes, standard dimensions, and tolerances for common metal shapes and machine elements.

Cooperation with engineering committees and commissions engaged in standardizing sizes of and tolerances for machine elements, for example, the Sectional Committee on Plain Limit Gauges (organized under the rules of the A. E. S. C.[1]), the Gauge-Steel Committee, and the National Screw Thread Commission.

[1]American Engineering Standards Committee.

Action on President's Recommendations

continued from p. 112

Mothers' Aid

"A carefully considered bill will be presented, which ought to have most thoughtful consideration."

Mar. 27—Mr. Capper, Kans., R., chairman of the Senate Committee on the District of Columbia, reported, with amendments, from that committee the bill (H. R. 7669, Keller, Minn., R.) to provide home care for dependent children in the District of Columbia. As amended, the bill conforms to the bill (S. 1929, Capper) previously reported, except that the Congress having in the meantime enacted the bill (S. 1430) to establish a board of public welfare in the District of Columbia and abolishing the Board of Charities referred to in the bill (S. 1929), the duty of administering aid to dependent children is shifted from the defunct Board of Charities to the newly created Board of Public Welfare. Section 1 of the bill (H. R. 7669) as passed by the House, which created a new "mother's aid board" to administer the act, has been stricken out in toto. Report No. 491.

STATEMENT OF OWNERSHIP

(Required by Act of Congress, August 24, 1912)

Of THE CONGRESSIONAL DIGEST, published monthly (except for months of July and August), at Washington, D. C., for April 1, 1926.

Before me, a Notary Public in and for the District of Columbia, City of Washington, personally appeared Alice Gram Robinson, who, having been duly sworn according to law, deposes and says she is the Editor, Publisher and Owner of THE CONGRESSIONAL DIGEST and that the following is, to the best of her knowledge and belief, a true statement of the ownership, management, etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in Section 443, Postal Laws and Regulations, to-wit:

1. That the name and address of the publisher, editor, managing editor, and business manager is: Alice Gram Robinson, Munsey Building, Washington, D. C.

2. That the owner is: Alice Gram Robinson, Munsey Building, Washington, D. C.

3. That the known bondholders, mortgagors, and other security holders owning or holding one per cent or more of total amount of bonds, mortgages, or other securities are (if there are none, so state). None.

ALICE GRAM ROBINSON,
Signature of Editor, Publisher and Owner.

Sworn to and subscribed before me this 29th day of March, 1926.

KATHERINE E. MERKLING, *Notary Public.*

My commission expires December 26, 1929.

Source Material

1. From testimony before U. S. House Committee on Coinage, Weights and Measures. Hearings on H. R. 10. 69th Congress, 1st Session. February, March, 1926.

2. Metric System in Export Trade. Report by Samuel W. Stratton, Director of the Bureau of Standards. 1916. 64th Congress 1st session. Senate Document No. 241.

3. World Metric Standardization. Compiled by Aubrey Drury. World Metric Standardization Council. San Francisco, Calif. 524 pp.

4. Hearings before U. S. Senate Committee on Manufacturers on S. 2267. 67th Congress. 1st and 2nd Sessions. 1921.

5. Measurement, Vol. 1, No. 1. Published by the Metric Association, New York.

Circular of the Bureau of Standards. No. 47.

Durell and Gillett New York State Arithmetics. New York, Merrill Co., 1925. 2 vols.

The Congressional Digest

The Student's Current Text-Book on National Problems

For the School Library and the Current Events Class

LIST OF BACK NUMBERS OF CURRENT IMPORTANCE STILL AVAILABLE

Numbers starred are exhausted except in bound volumes.
The subjects listed represent the pro and con feature of the number.

Vol. II

October, 1922-September, 1923

Muscle Shoals Development*
Operation of U. S. Budget System*
Inter-Allied Debt Controversy*
Rural Credits Legislation
Child Labor Amendment
Review of 67th Congress
Federal Civil Service
World Court Proposal
U. S. Supreme Court
America and Her Immigrants
Federal Taxation

Vol. III

October, 1923-September, 1924

Congress and the Railroads
How a New Congress is Organized
Problems Before the 68th Congress
Reorganization of U. S. Foreign Service
The Sterling-Reed Education Bill
The Woman's "Equal Rights" Amendment
Immediate Philippine Independence
The McNary-Haugen Agricultural Bill
Peace Proposals Before 68th Congress
Political Parties and Issues of 1924
Developing Our Inland Waterways

Vol. IV

October, 1924-December, 1925

America's Stand Against Liquor
The Dawes Plan for German Reparation Payments
Repeal of Federal Income Tax Publicity Law
National Defense and the Limiting of Naval Armament
Postal Pay and Rate Issue
Review of 68th Congress: New Public Laws; Recess Investigation; Special Session of 69th Congress; Members of the 69th Congress by State Delegations (As of March, 1925)
Federal Department of Aeronautics
Congress and Cooperative Marketing
Congress and the Coal Problem
Federal Estate Tax Repeal

Vol. V

January-December, 1926

American Merchant Marine
The United States and the World Court
The McFadden Banking Bill
Should United States Adopt Metric System
Federal Department of Education—Pro and Con (May Issue)

Address your subscription to

THE CONGRESSIONAL DIGEST

Munsey Building **Washington, D. C.**

Published Monthly, except for July and August

$5.00 a Year **Back Numbers 75c a Copy** **10 Cents a Copy**